

1/35

Polypeptide	Amino acid sequence					SEQ ID NO:	
Z _{wt}	VDNKFNKEQQ	NAFYEIHLHP	NLN EE QRNAF	IQSLKDDPSQ	SANLLAEAKK	LNDAAQAPK	1
Z _{HER2 A}	VDNKFNKELR	QAYWEIQALP	NLNWTQSRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	2
Z _{HER2 B}	VDNKFNKEPK	TAYWEIVKLP	NLN PE QRRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	3
Z _{HER2 C}	VDNKFNKEPR	EAYWEIQRLP	NLN NK QKA AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	4
Z _{HER2 D}	VDNKFNKEWV	QAGSEIYNLP	NLN RA QMR AF	IRSLSDPPSQ	SANLLAEAKK	LNDAAQAPK	5
Z _{HER2:101}	VDNKFNKEMR	HAYWEIVKLP	NLN PR QKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	6
Z _{HER2:102}	VDNKFNKEMR	KAYWEIVLLP	NLN RR QSR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	7
Z _{HER2:103}	VDNKFNKEMR	HAYWEIATLP	NLN NV QKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	8
Z _{HER2:104}	VDNKFNKEFR	TAYWEIVLLP	NLNPGQIRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	9
Z _{HER2:105}	VDNKFNKELR	TAYWEIVLLP	NLN TW QIRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	10
Z _{HER2:106}	VDNKFNKEPR	KAYWEIAVLP	NLN PA QKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	11
Z _{HER2:107}	VDNKFNKEMR	NAYWEIALLP	NLN NQ QKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	12
Z _{HER2:108}	VDNKFNKELR	TAYWEIVGLP	NLN HF QVRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	13
Z _{HER2:109}	VDNKFNKELR	TAYWEIVLLP	NLN RW QIRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	14
Z _{HER2:110}	VDNKFNKEIR	NAYWEIALLP	NLN NM QKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	15
Z _{HER2:112}	VDNKFNKEFR	KAYWEIVVLP	NLN RM QIRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	16
Z _{HER2:113}	VDNKFNKEFR	TAYWEIVLLP	NLN RE QGR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	17
Z _{HER2:114}	VDNKFNKEMR	TAYWEIATLP	NLN NK QIRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	18
Z _{HER2:115}	VDNKFNKEFR	NAYWEIVVLP	NLN NR QKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	19
Z _{HER2:116}	VDNKFNKEFR	NAYWEIAKLP	NLN NG QKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	20
Z _{HER2:118}	VDNKFNKEFR	QAYWEIALLP	NLN HS QTRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	21
Z _{HER2:120}	VDNKFNKEPR	HAYWEIVKLP	NLN SL QKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	22
Z _{HER2:121}	VDNKFNKELR	TAYWEIVGLP	NLN SR QSR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	23
Z _{HER2:122}	VDNKFNKELR	TAYWEIAGLP	NLN PK QKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	24
Z _{HER2:123}	VDNKFNKEMR	KAYWEITQLP	NLN TR QTRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	25
Z _{HER2:124}	VDNKFNKEFR	KAYWEIVLLP	NLN WE QNR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	26
Z _{HER2:125}	VDNKFNKEFR	KAYWEITQLP	NLN RE QNR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	27
Z _{HER2:126}	VDNKFNKEMR	HAYWEIATLP	NLN TN QSR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	28
Z _{HER2:127}	VDNKFNKEMR	NAYWEIVGLP	NLN RW QSR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	29

FIGURE 1

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2/35

Polypeptide	Amino acid sequence					SEQ ID NO:	
Z _{HER2} :129	VDNKFNKELR	NAYWEIVKLP	NLNFVQHRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	30
Z _{HER2} :130	VDNKFNKEFR	TAYWEIVKLP	NLNVRSQSRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	31
Z _{HER2} :133	VDNKFNKENR	TAYWEIVKLP	NLNDYQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	32
Z _{HER2} :135	VDNKFNKEFR	TAYWEITQLP	NLNLRLQSRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	33
Z _{HER2} :137	VDNKFNKEIR	TAYWEIAGLP	NLNAQQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	34
Z _{HER2} :138	VDNKFNKEMR	QAYWEIVRLP	NLNAQQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	35
Z _{HER2} :139	VDNKFNKEMR	NAYWEIVTLP	NLNLKTQSRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	36
Z _{HER2} :140	VDNKFNKEMR	QAYWEIVKLP	NLNLPGQSRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	37
Z _{HER2} :148	VDNKFNKEMR	TAYWEIALLP	NLNLNMQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	38
Z _{HER2} :153	VDNKFNKEFR	KAYWEIALLP	NLNLKWQSRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	39
Z _{HER2} :158	VDNKFNKEMR	KAYWEIALLP	NLNLRWQIRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	40
Z _{HER2} :159	VDNKFNKEMR	QAYWEIVLLP	NLNLRWQTRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	41
Z _{HER2} :162	VDNKFNKELR	KAYWEIVGLP	NLNLREQNRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	42
Z _{HER2} :165	VDNKFNKEMR	TAYWEIVGLP	NLNLNQQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	43
Z _{HER2} :167	VDNKFNKELR	TAYWEIVRLP	NLNLVNQTRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	44
Z _{HER2} :168	VDNKFNKEFR	HAYWEIVRLP	NLNLAGQHRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	45
Z _{HER2} :169	VDNKFNKELR	KAYWEIVTLP	NLNLPSQHRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	46
Z _{HER2} :170	VDNKFNKEMR	TAYWEIAKLP	NLNLPPQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	47
Z _{HER2} :171	VDNKFNKELR	TAYWEIVTLP	NLNLTSQTRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	48
Z _{HER2} :172	VDNKFNKELR	KAYWEIQVLP	NLNLVRQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	49
Z _{HER2} :177	VDNKFNKEPR	QAYWEIVLLP	NLNLRFQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	50
Z _{HER2} :178	VDNKFNKEMR	NAYWEIVGLP	NLNLQGQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	51
Z _{HER2} :179	VDNKFNKEPR	QAYWEIVKLP	NLNLNSQRRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	52
Z _{HER2} :180	VDNKFNKENR	TAYWEIVRLP	NLNLSAQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	53
Z _{HER2} :205	VDNKFNKEMR	NAYWEIVLLP	NLNLRWQSRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	54
Z _{HER2} :207	VDNKFNKEMR	TAYWEIVILP	NLNLKWQIRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	55
Z _{HER2} :209	VDNKFNKEMR	NAYWEIALLP	NLNLVAQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	56
Z _{HER2} :222	VDNKFNKEFR	QAYWEIVKLP	NLNLSCQHRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	57
Z _{HER2} :223	VDNKFNKEMR	TAYWEIVKLP	NLNLIAQNRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	58
Z _{HER2} :225	VDNKFNKELR	TAYWEIVSLP	NLNLRNQSRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	59
Z _{HER2} :226	VDNKFNKEMR	NAYWEIVKLP	NLNLPGQSRAF	IRSLYDDPSQ	SANLLAEAKK	LNDQAQAPK	60

FIGURE 1

3/35

Polypeptide	Amino acid sequence					SEQ ID NO:	
Z _{HER2} :227	VDNKFENKEMR	QAYWEIALILP	NLNKRWQIRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	61
Z _{HER2} :229	VDNKFENKEFR	TAYWEIAVL P	NLNNQQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	62
Z _{HER2} :230	VDNKFENKECR	TAYWEIVKLP	NLNNAQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	63
Z _{HER2} :232	VDNKFENKEPK	TAYWEIVVLP	NLNSKQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	64
Z _{HER2} :233	VDNKFENKEMR	NAYWEIVTLP	NLNKRWQIRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	65
Z _{HER2} :234	VDNKFENKEMR	KAYWEIATLP	NLNKSQSR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	66
Z _{HER2} :235	VDNKFENKEFR	TAYWEIVTLP	NLNVGQTRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	67
Z _{HER2} :236	VDNKFENKELR	TAYWEIVGLP	NLNTRQSR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	68
Z _{HER2} :237	VDNKFENKELR	HAYWEIVQLP	NLNREQGRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	69
Z _{HER2} :239	VDNKFENKEFR	HAYWEI IKLP	NLNGKQHR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	70
Z _{HER2} :240	VDNKFENKEMR	TAYWEIVSLP	NLNTLQSR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	71
Z _{HER2} :261	VDNKFENKEMR	KAYWEIQGLP	NLNNRQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	72
Z _{HER2} :264	VDNKFENKEMR	NAYWEIAKLP	NLNREQKRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	73
Z _{HER2} :265	VDNKFENKEMR	HAYWEIVGLP	NLNMIQQRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	74
Z _{HER2} :271	VDNKFENKELR	NAYWEIVKLP	NLNRAQNRAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	75
Z _{HER2} :278	VDNKFENKELR	TAYWEI IKLP	NLNNYQRR AF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	76
Z _{HER2} :0024*	VDNKFENKEPR	EAYWEIQRLP	NLNNKQKTAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	77
Z _{HER2} :0434	VDNKFENKEMY	AAYWEIIDLP	NLNTPQIHAF	IRSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	78
Z _{HER2} :3053	VDNKFENKETR	SAYWEIVNLP	NLNQGQRHAF	IKSLYDDPSQ	SANLLAEAKK	LNDAAQAPK	79

FIGURE 1

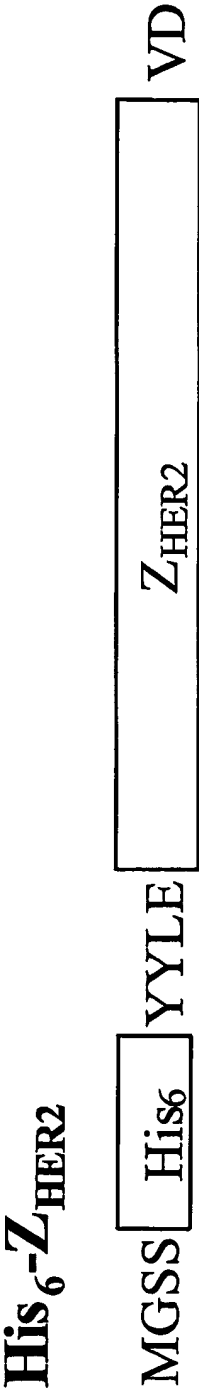
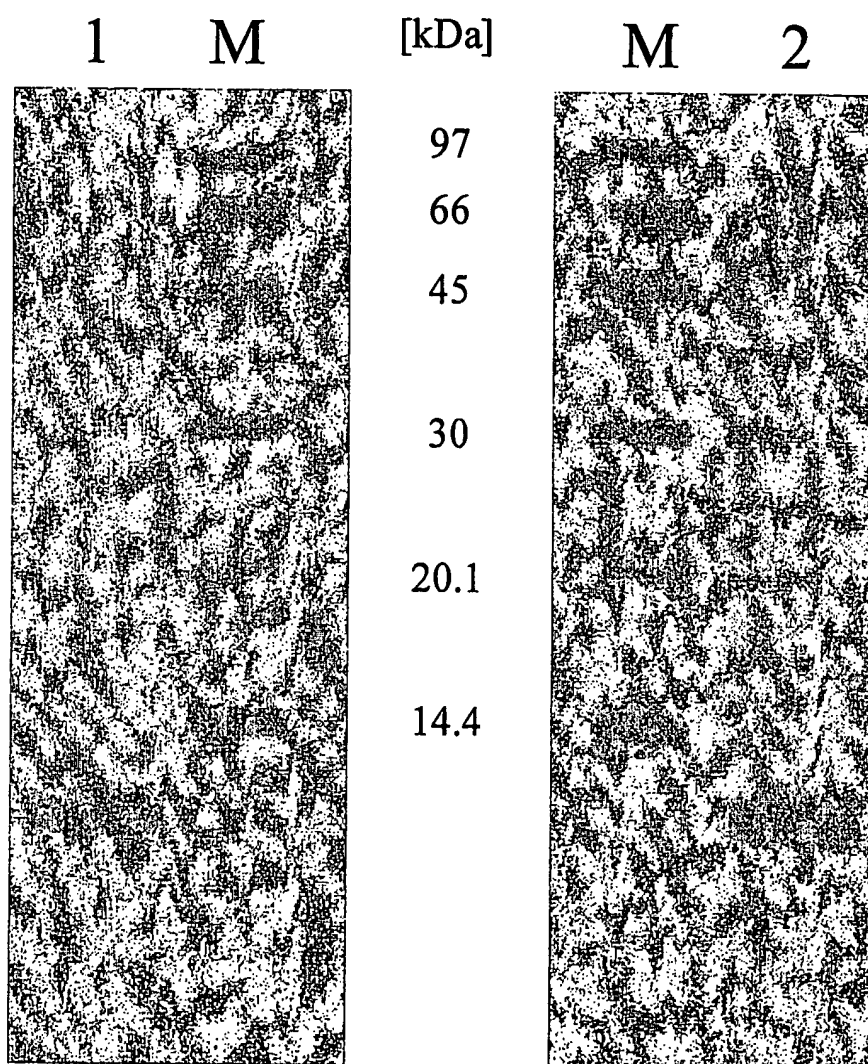
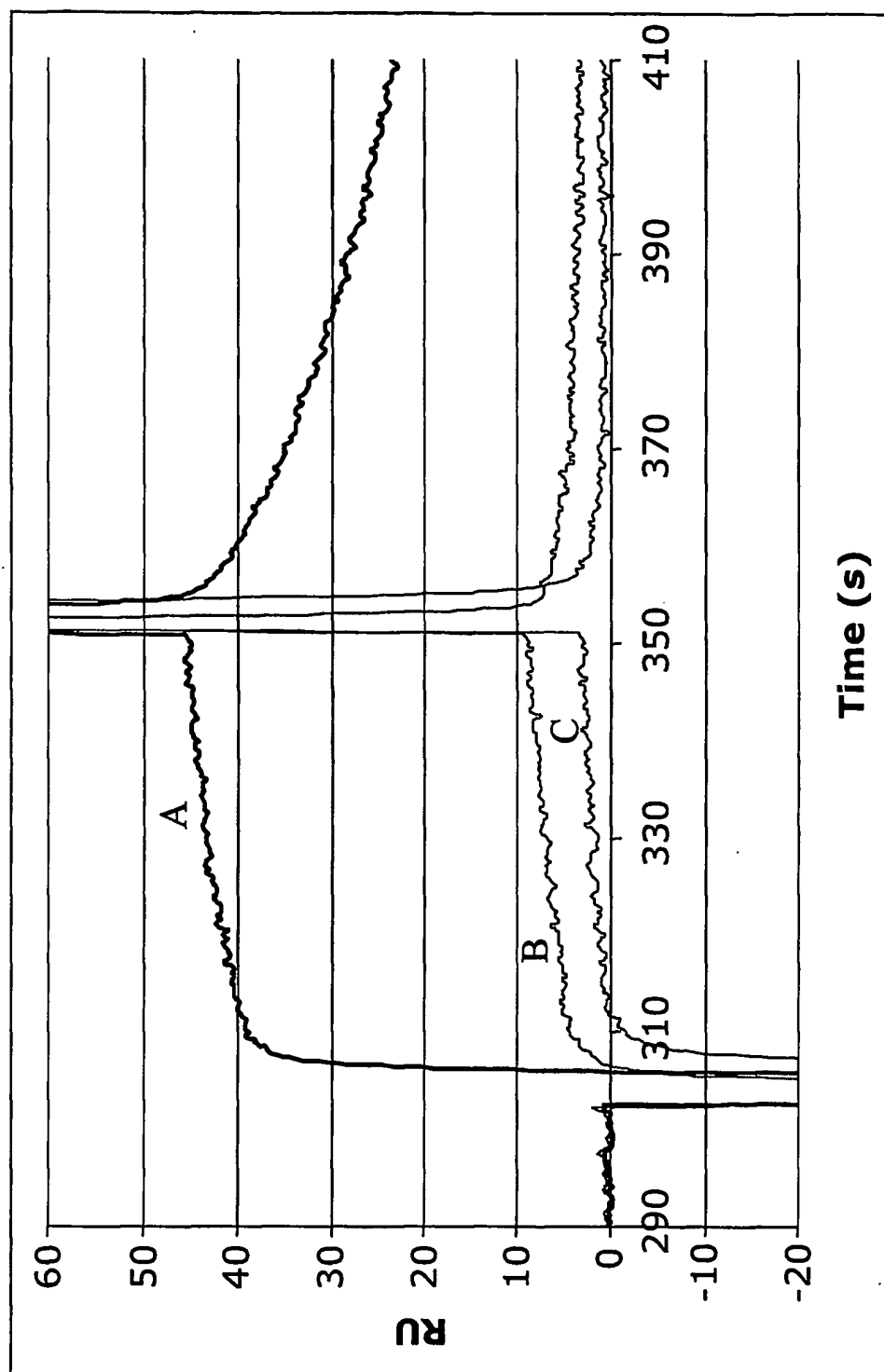


FIGURE 2

5/35

**FIGURE 3**

6/35

**FIGURE 4**

7/35

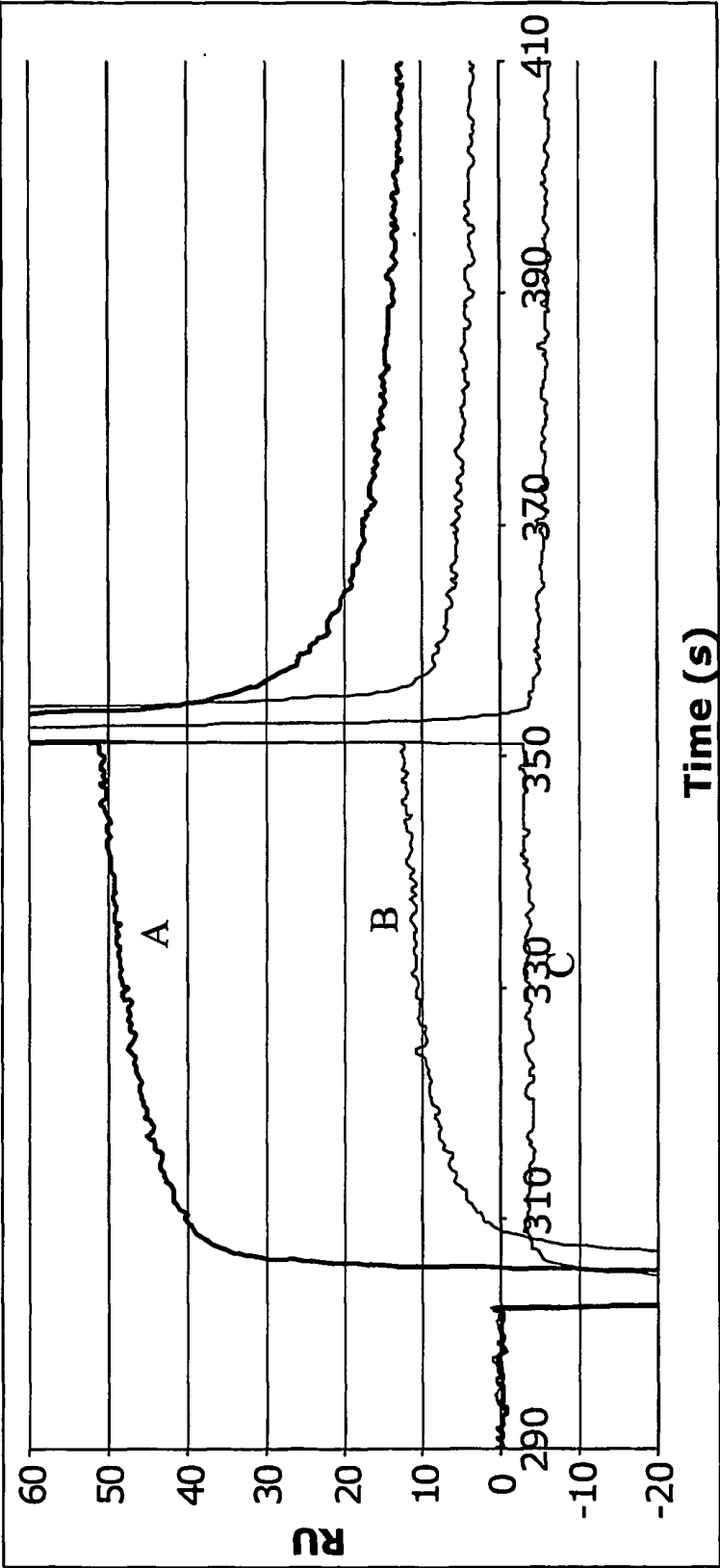


FIGURE 5

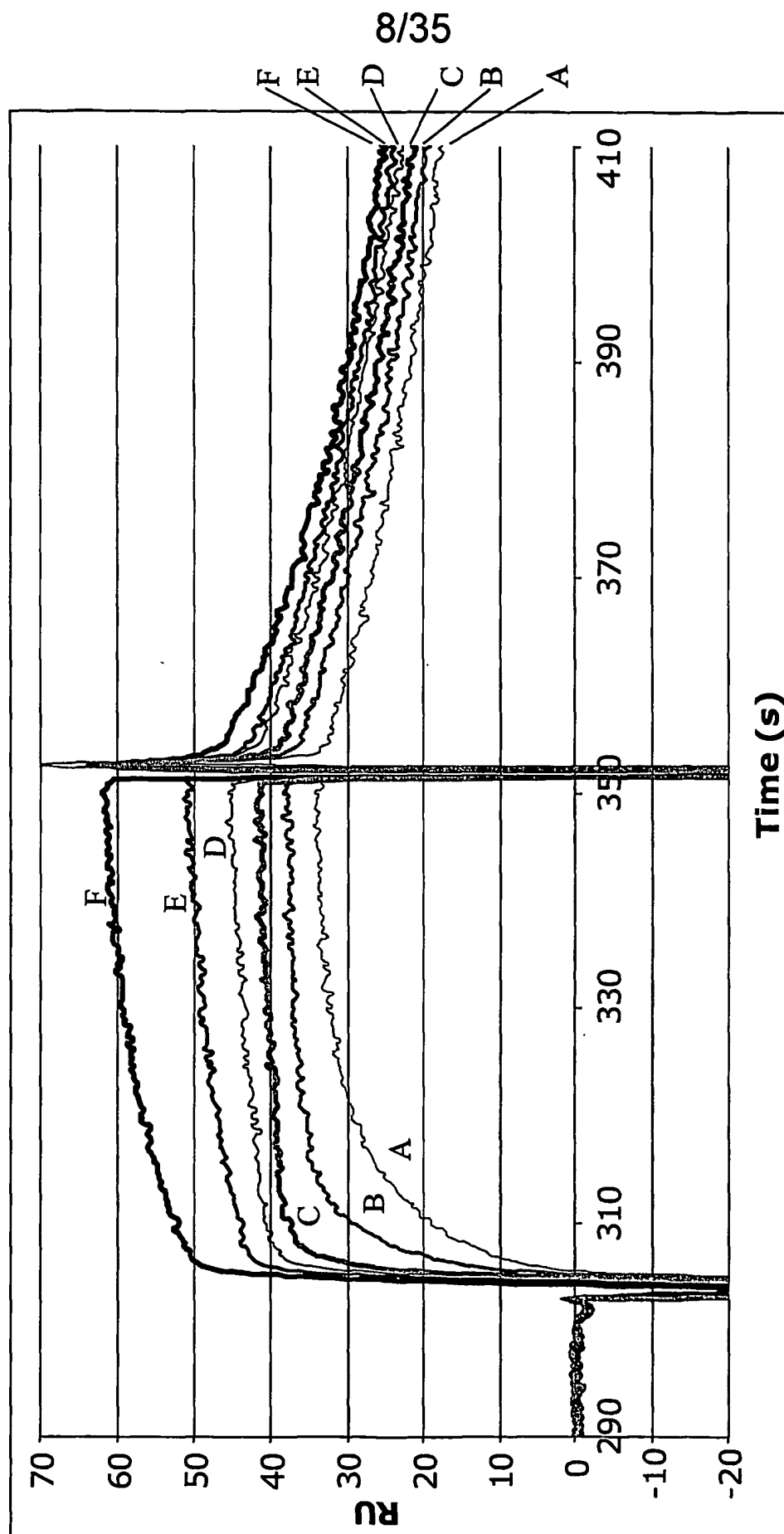


FIGURE 6

9/35

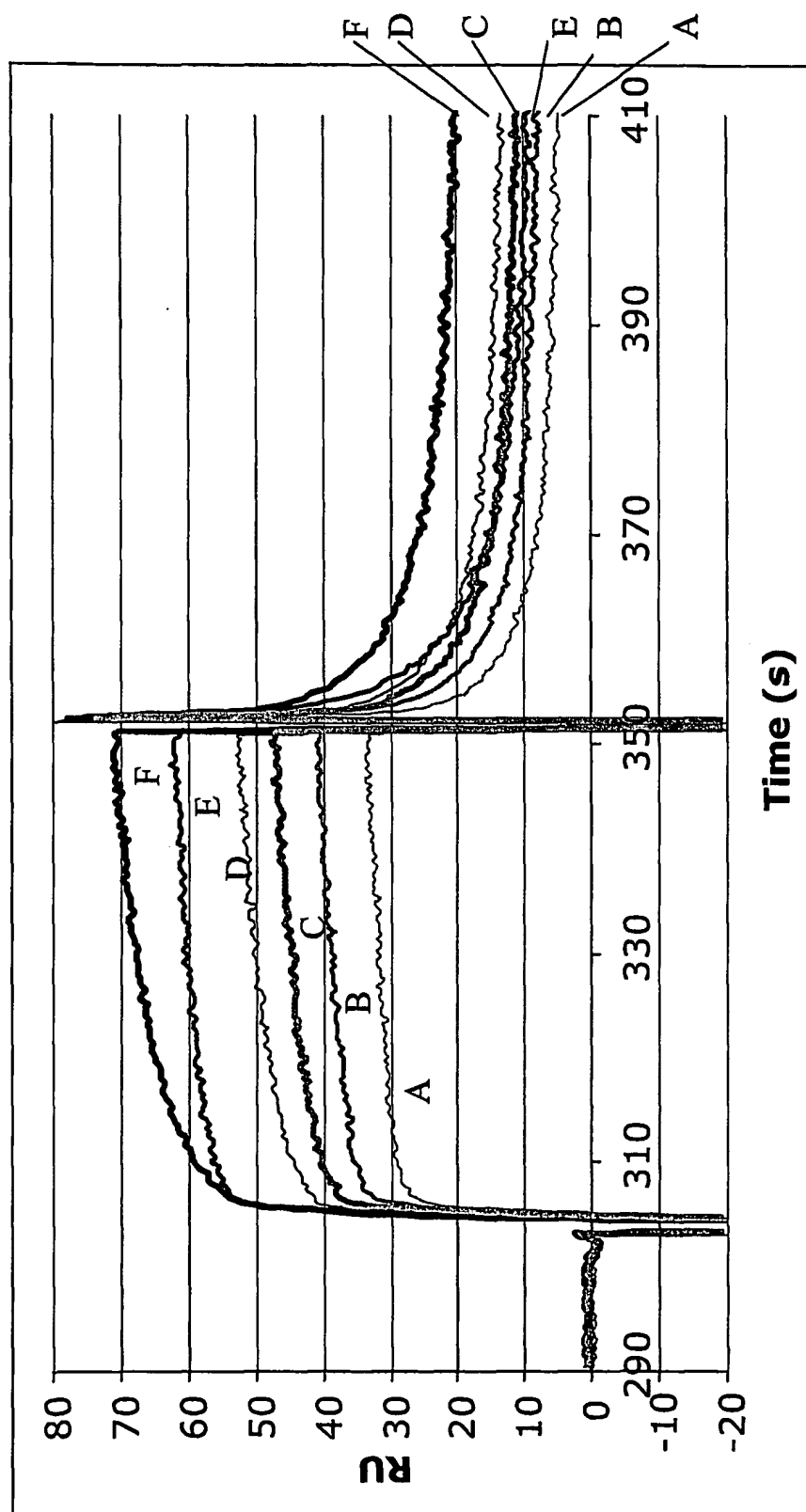
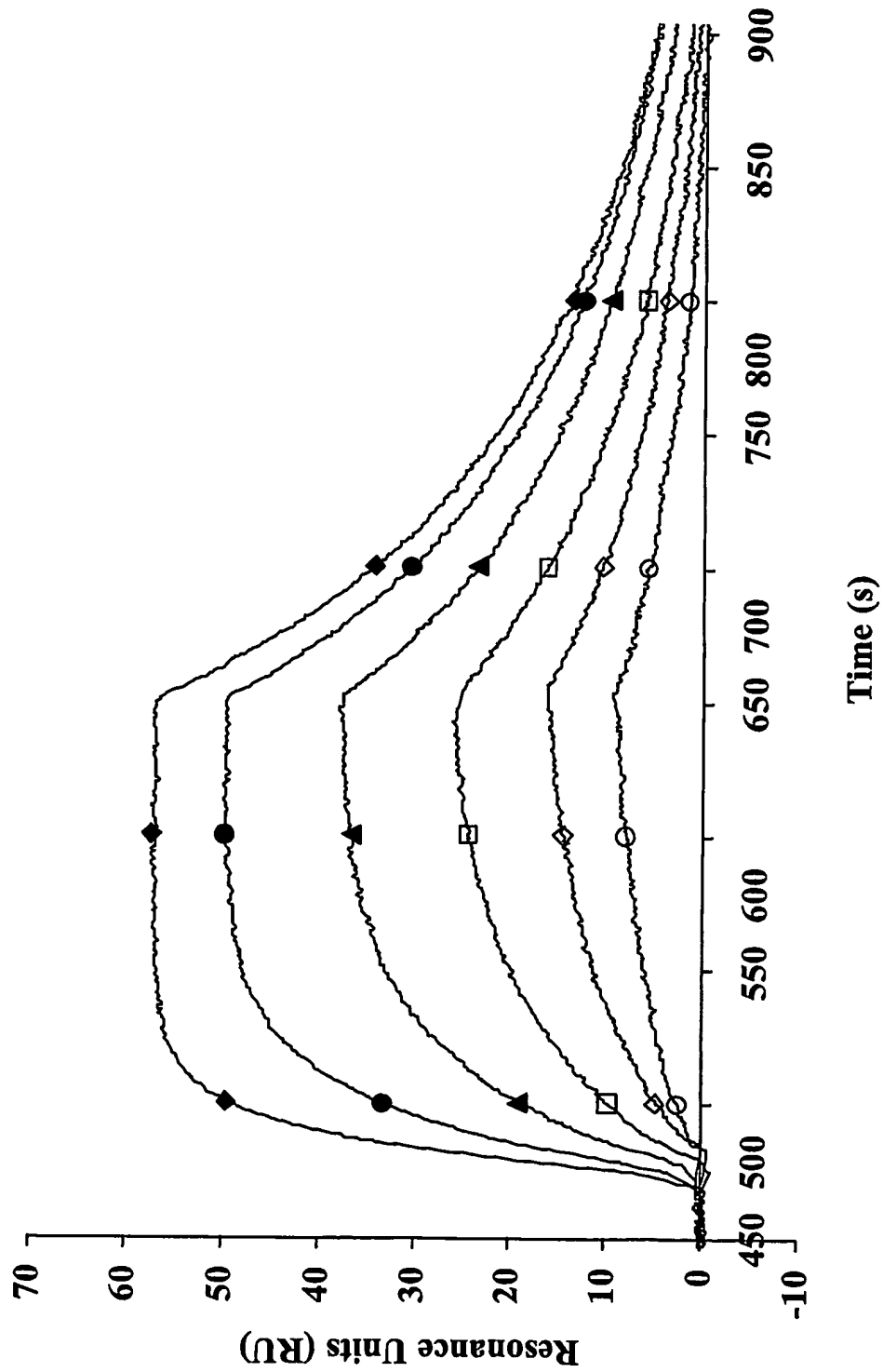


FIGURE 7

10/35

**FIGURE 8A**

11/35

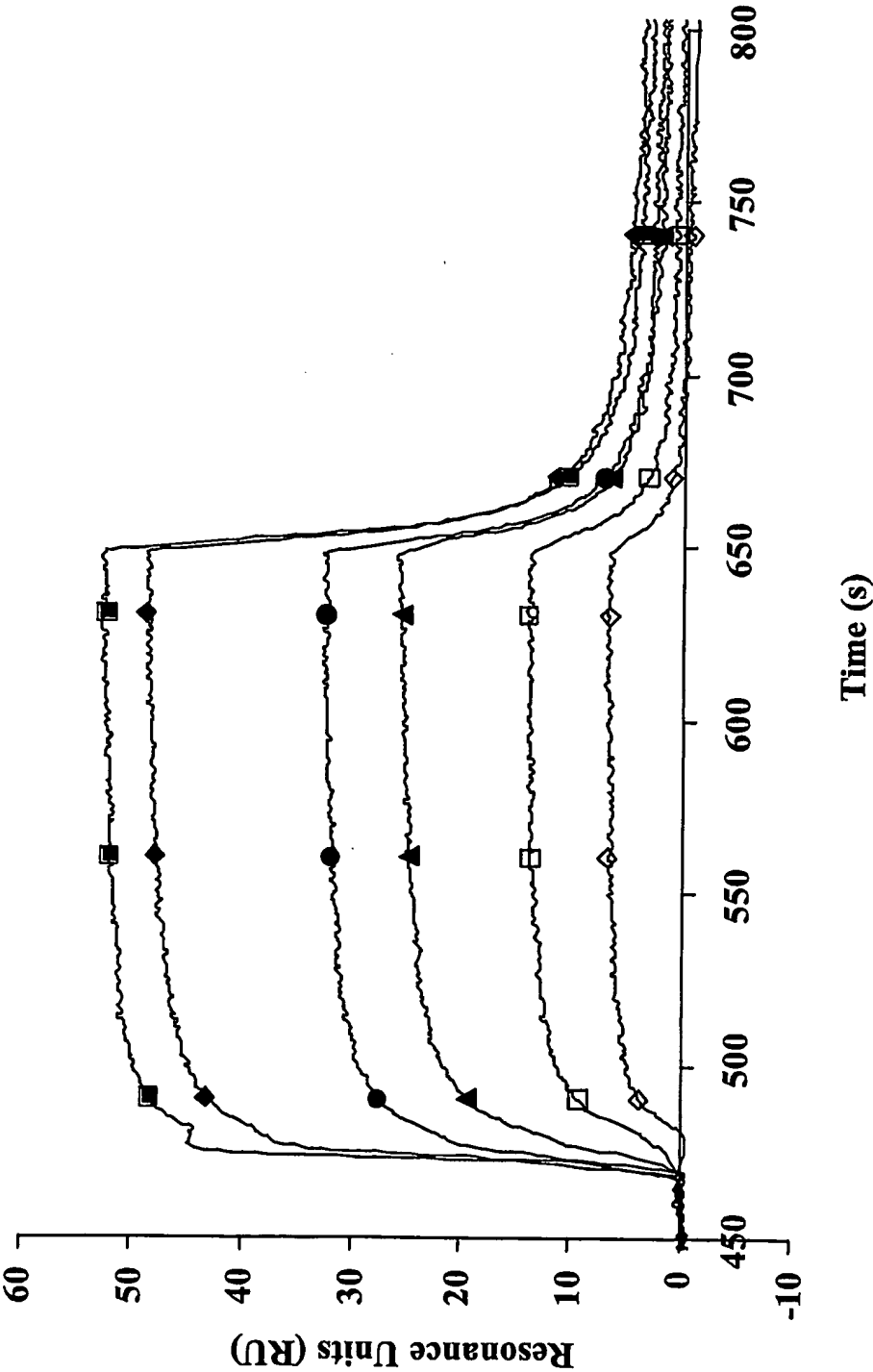


FIGURE 8B

12/35

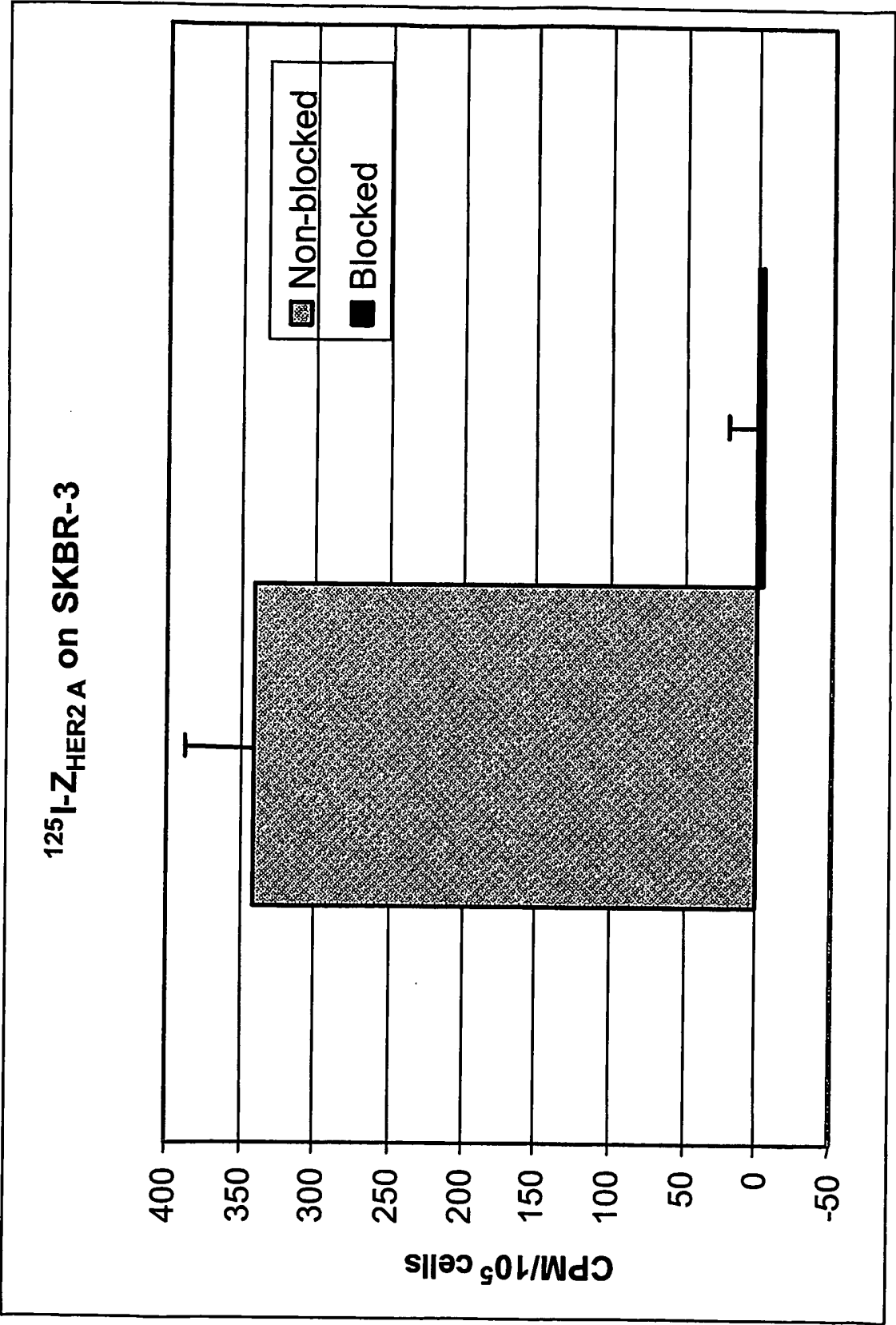


FIGURE 9

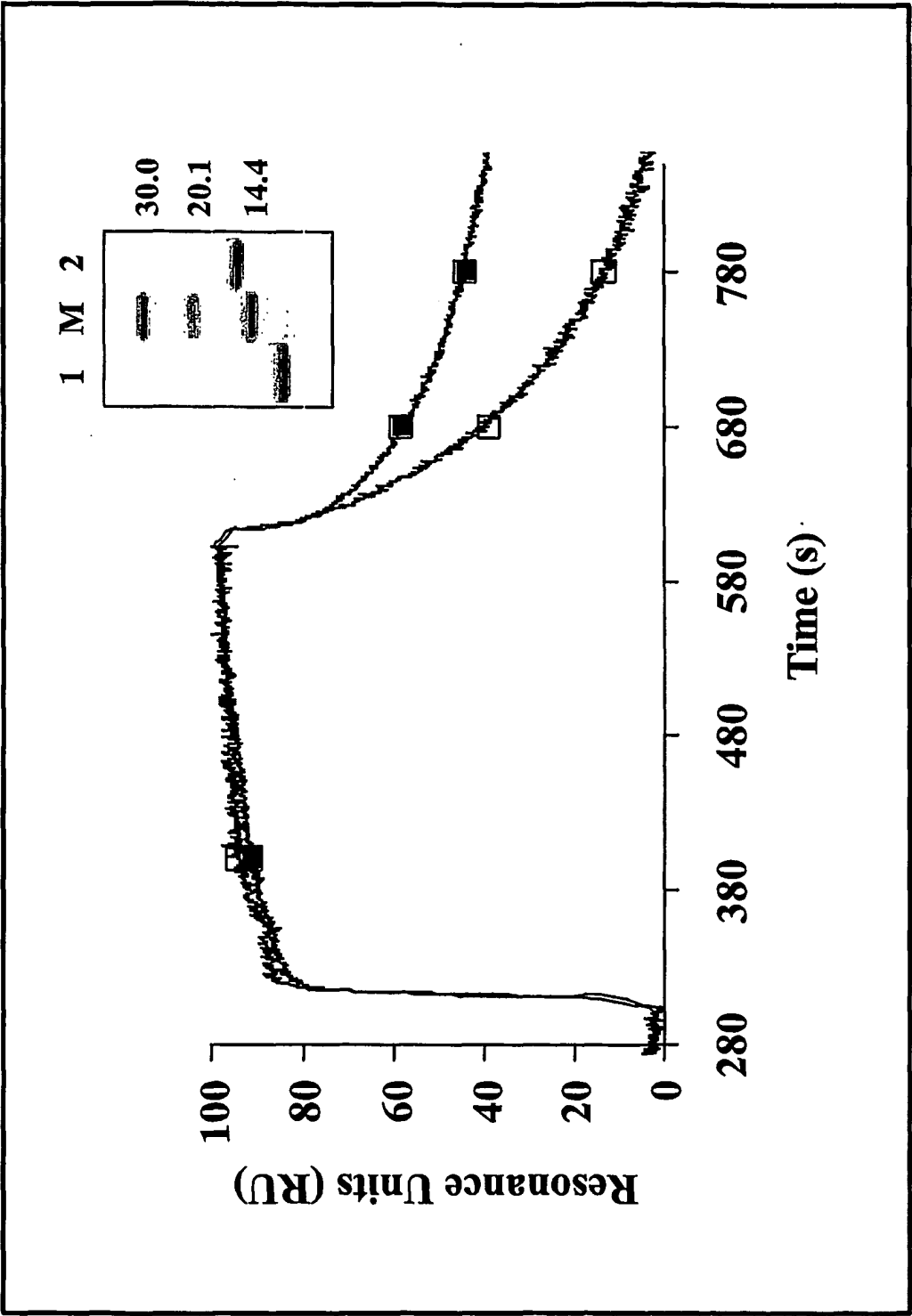


FIGURE 10

Blocked vs non-blocked

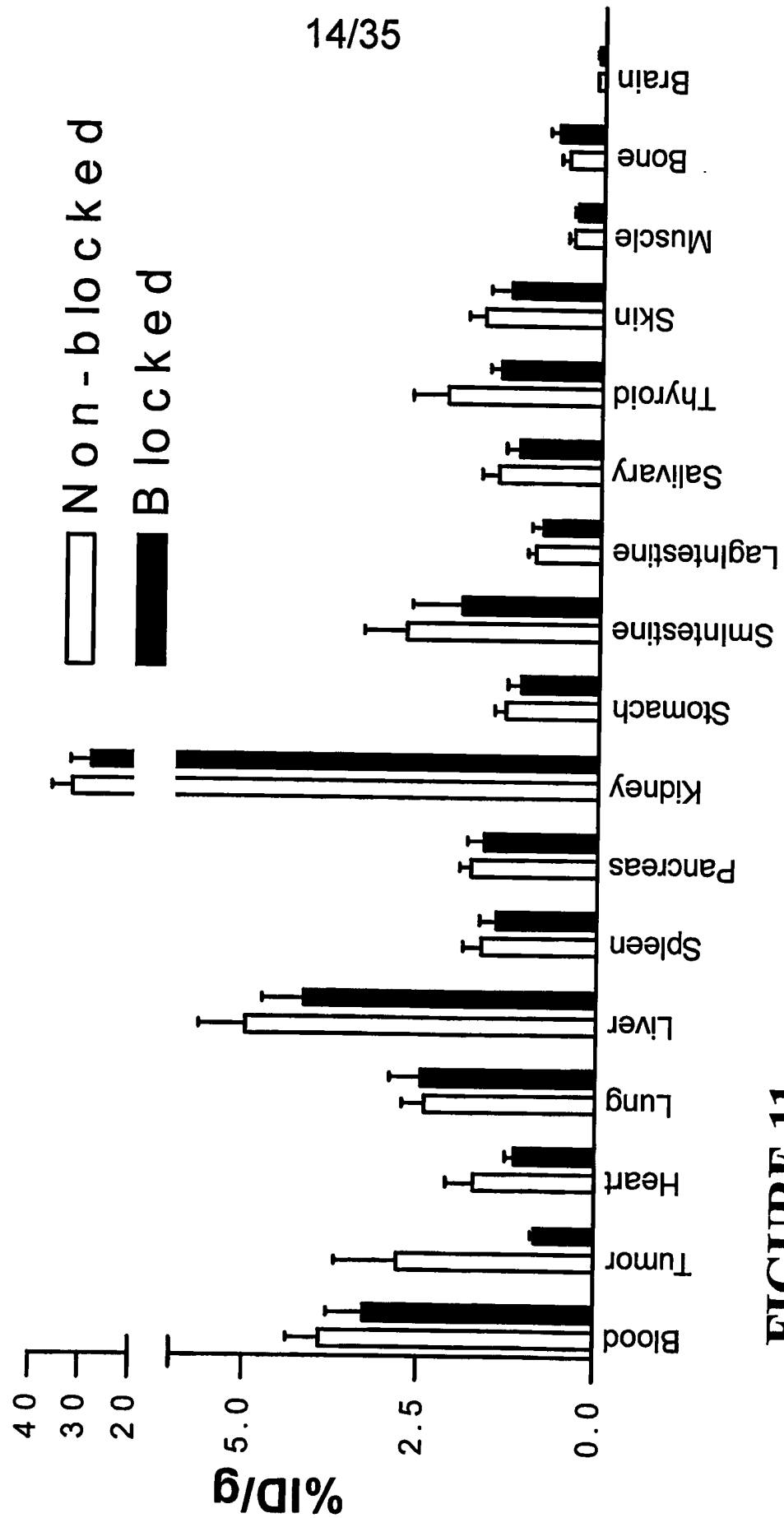


FIGURE 11

15/35

Specific vs unspecific antibody

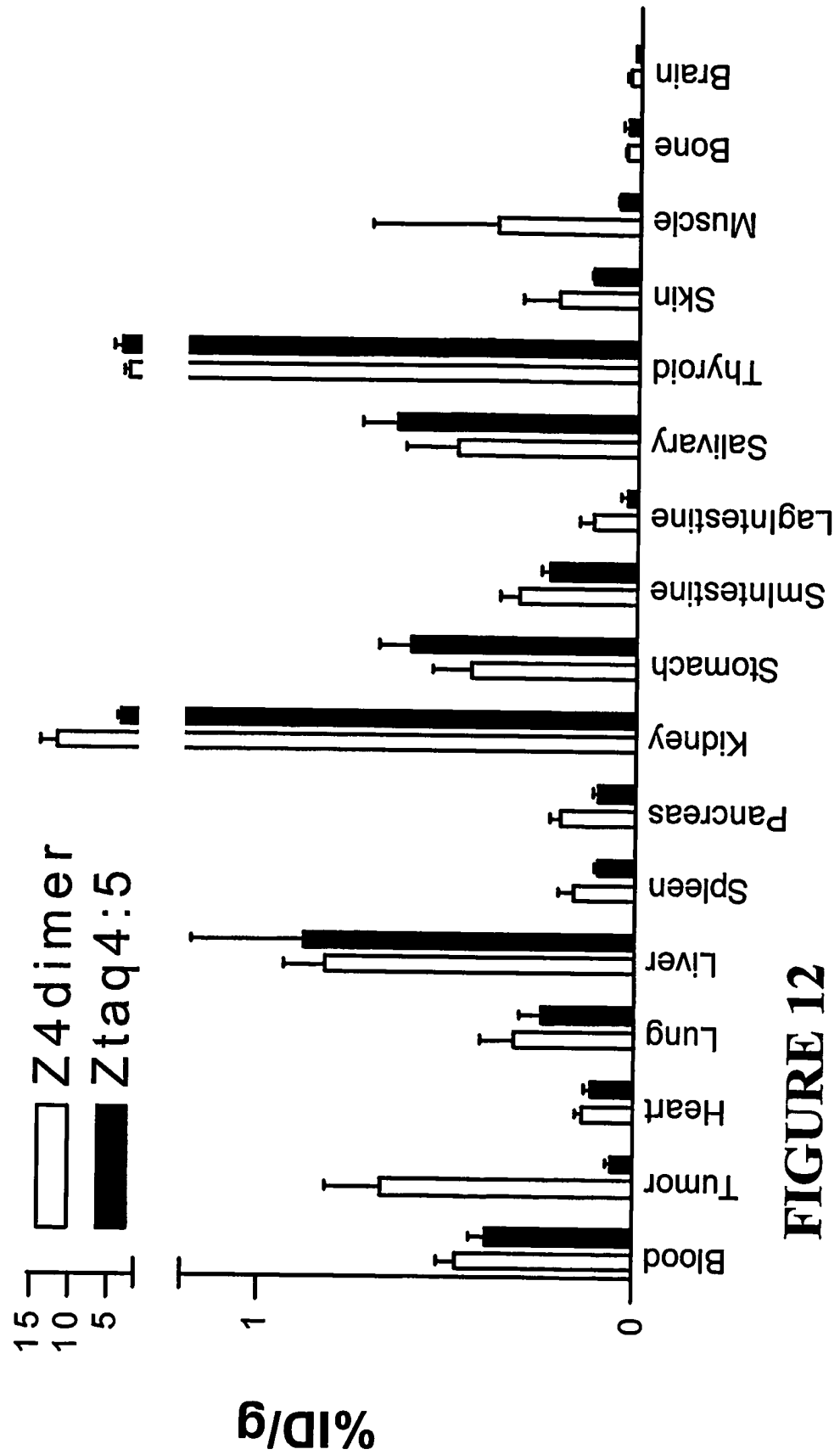


FIGURE 12

16/35

Biodistribution, combined data

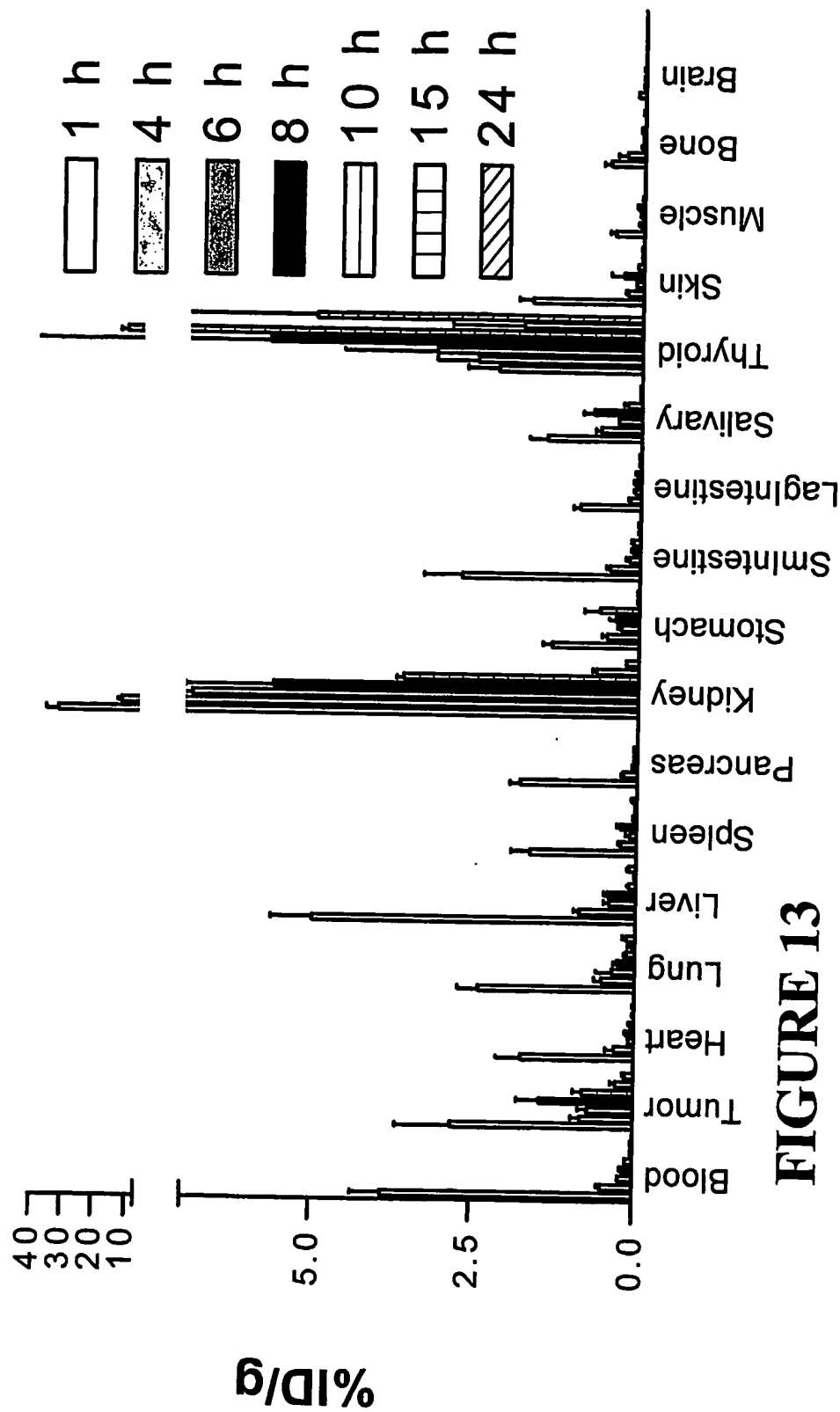


FIGURE 13

17/35

Biodistribution at 8 h ip

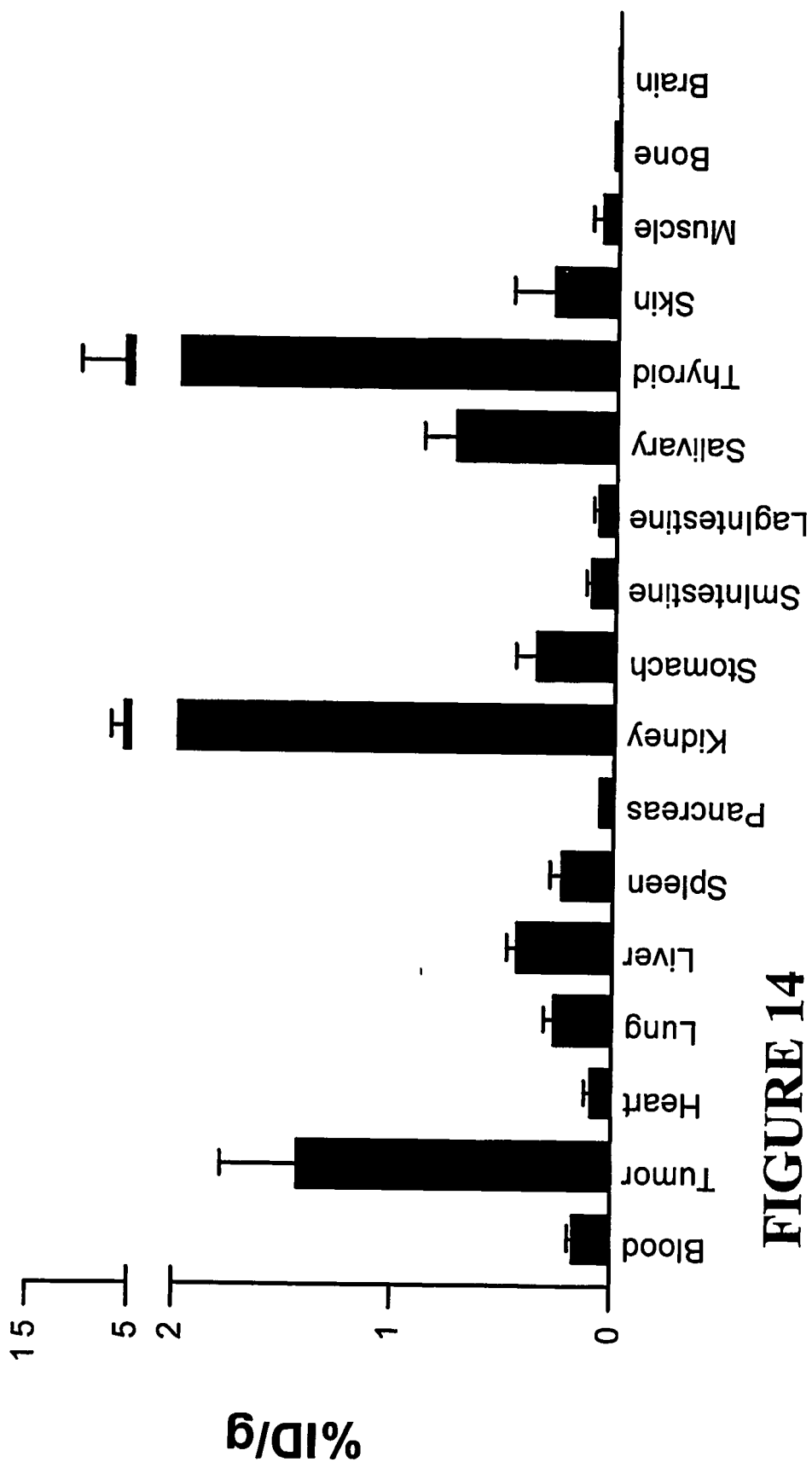


FIGURE 14

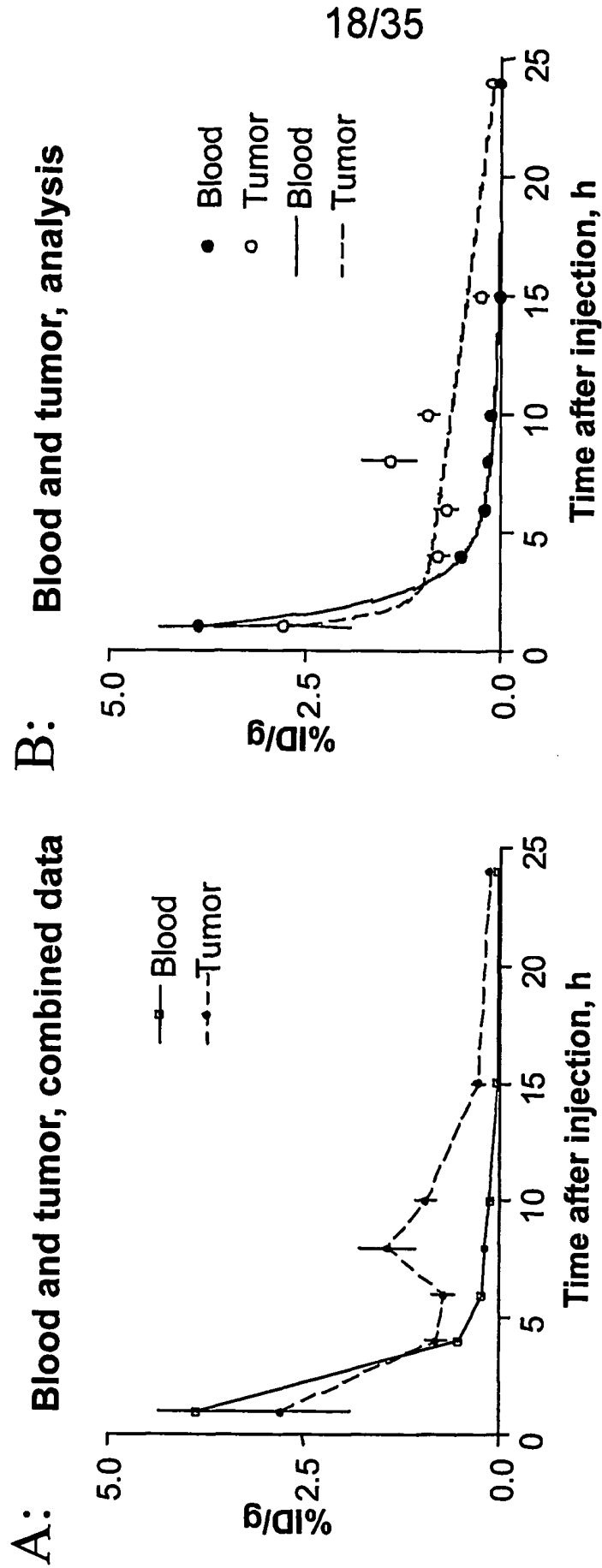


FIGURE 15

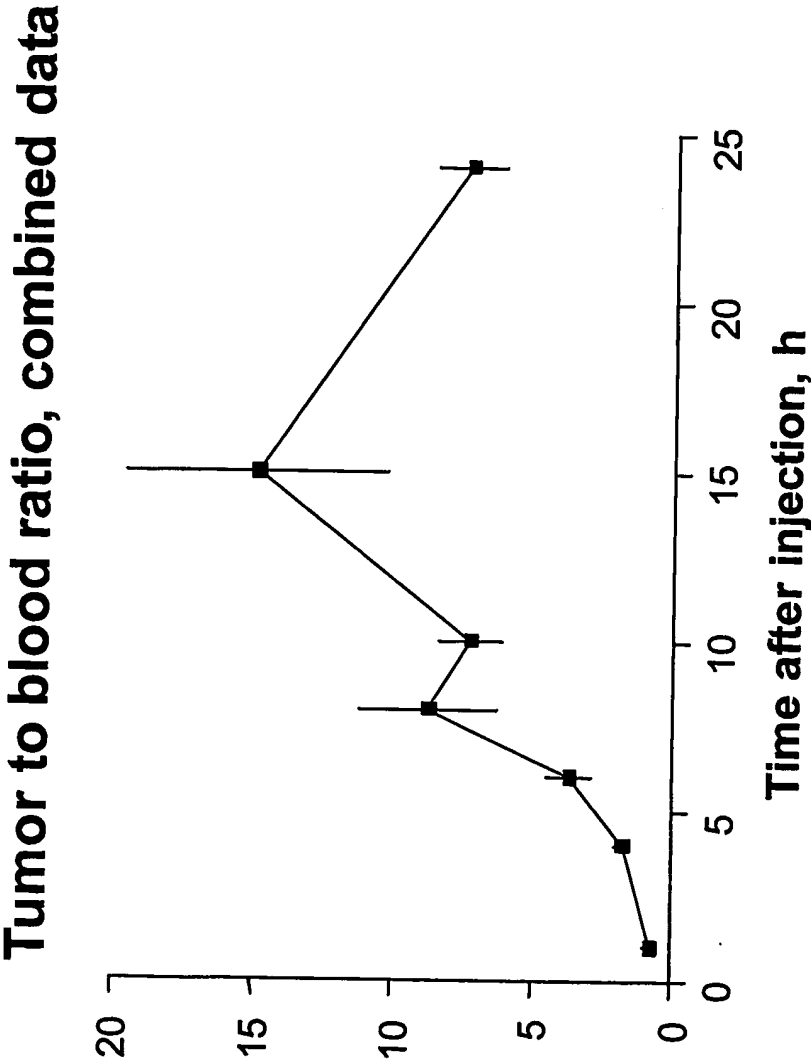


FIGURE 16

20/35

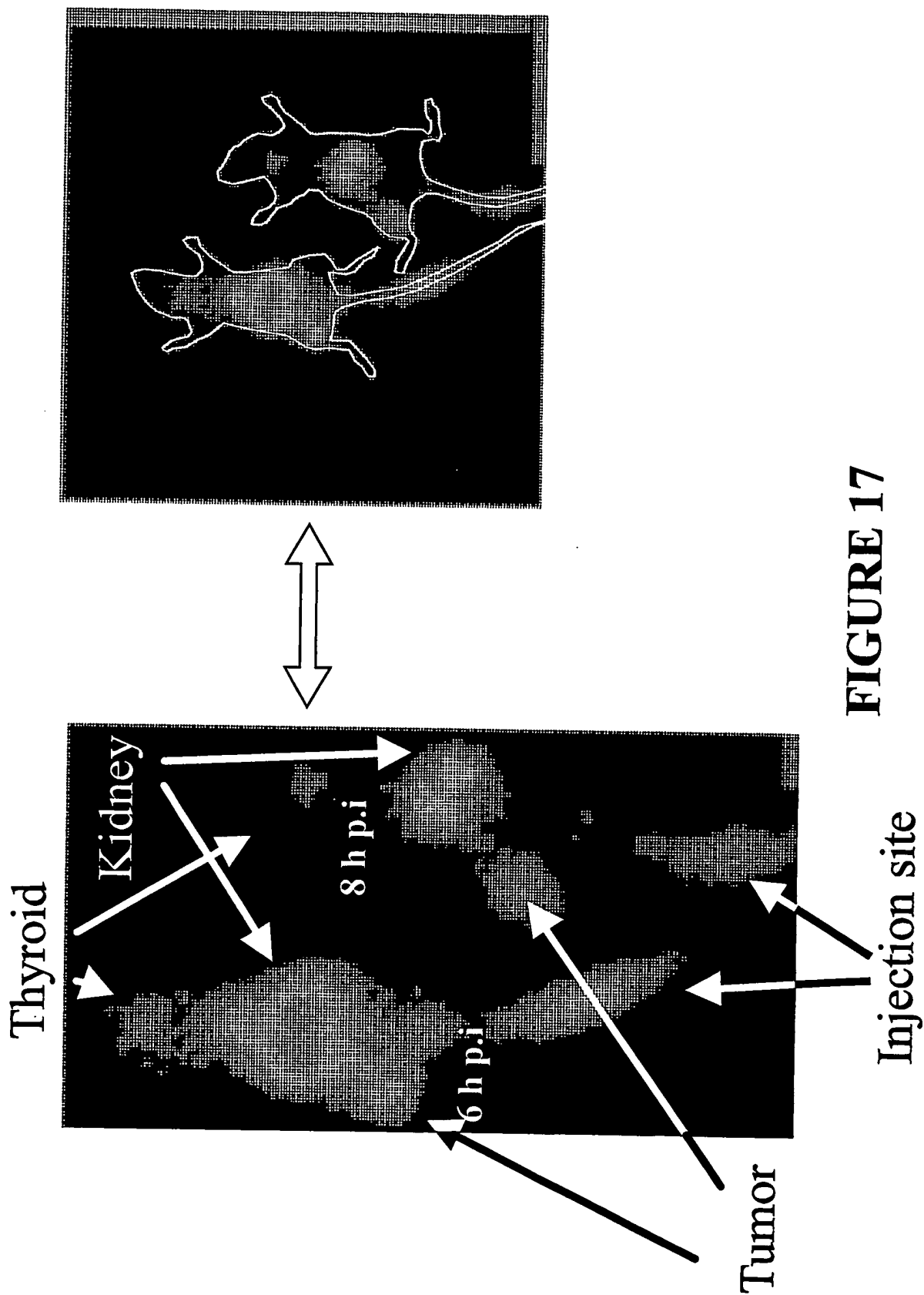


FIGURE 17

Biodistribution of Z_{HER2A} 4 hours

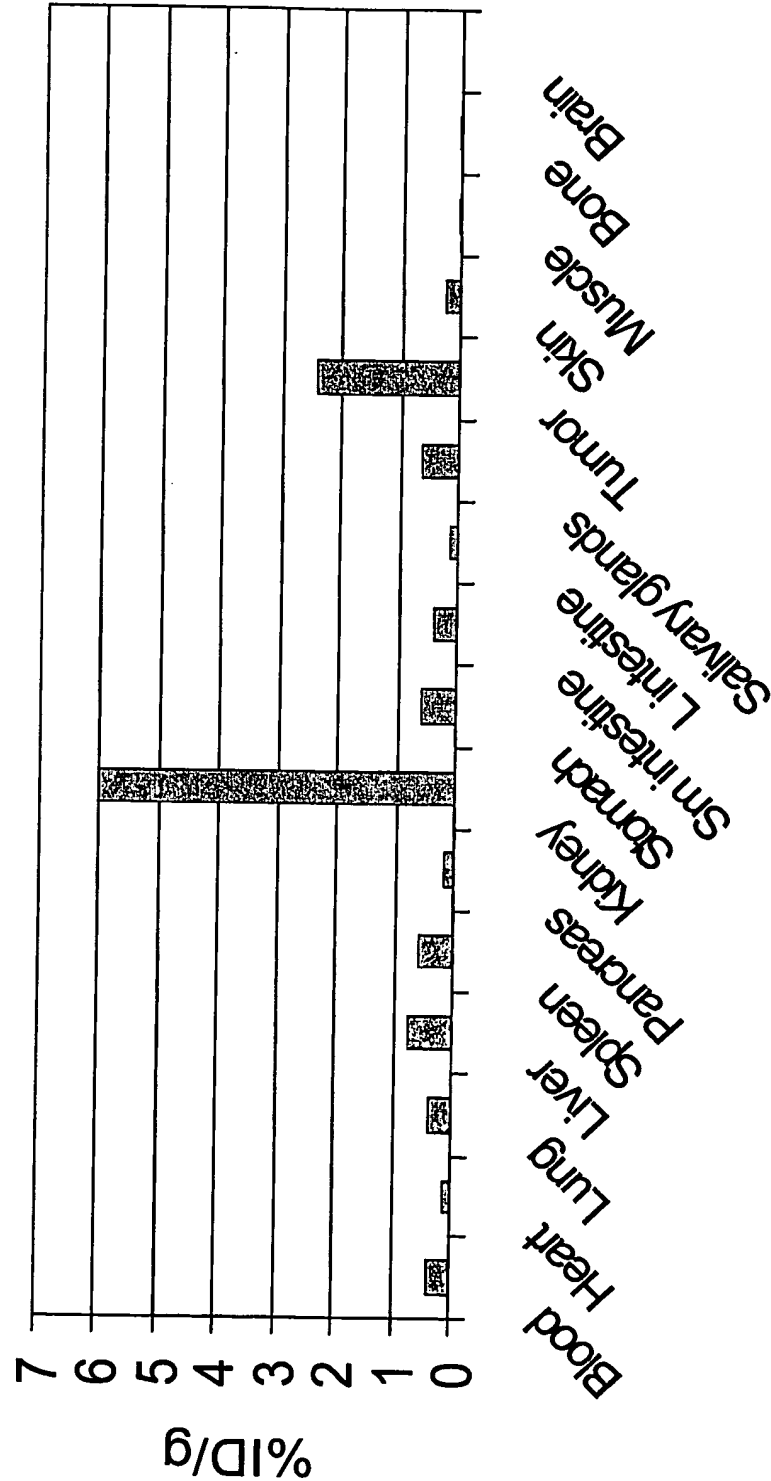


FIGURE 18

22/35

Biodistribution of Z_{HER2}A₂ 24 hours

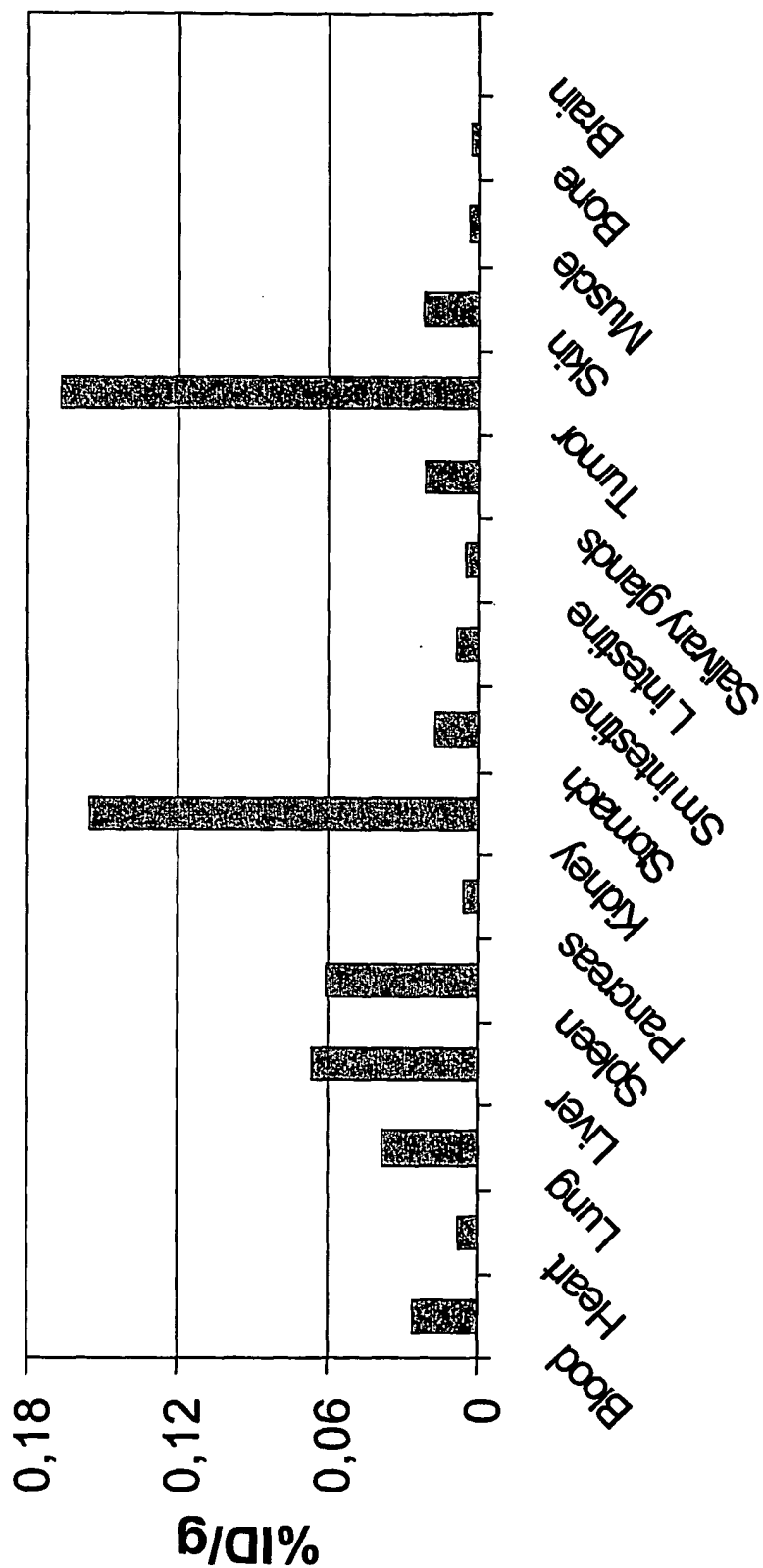


FIGURE 19

23/35

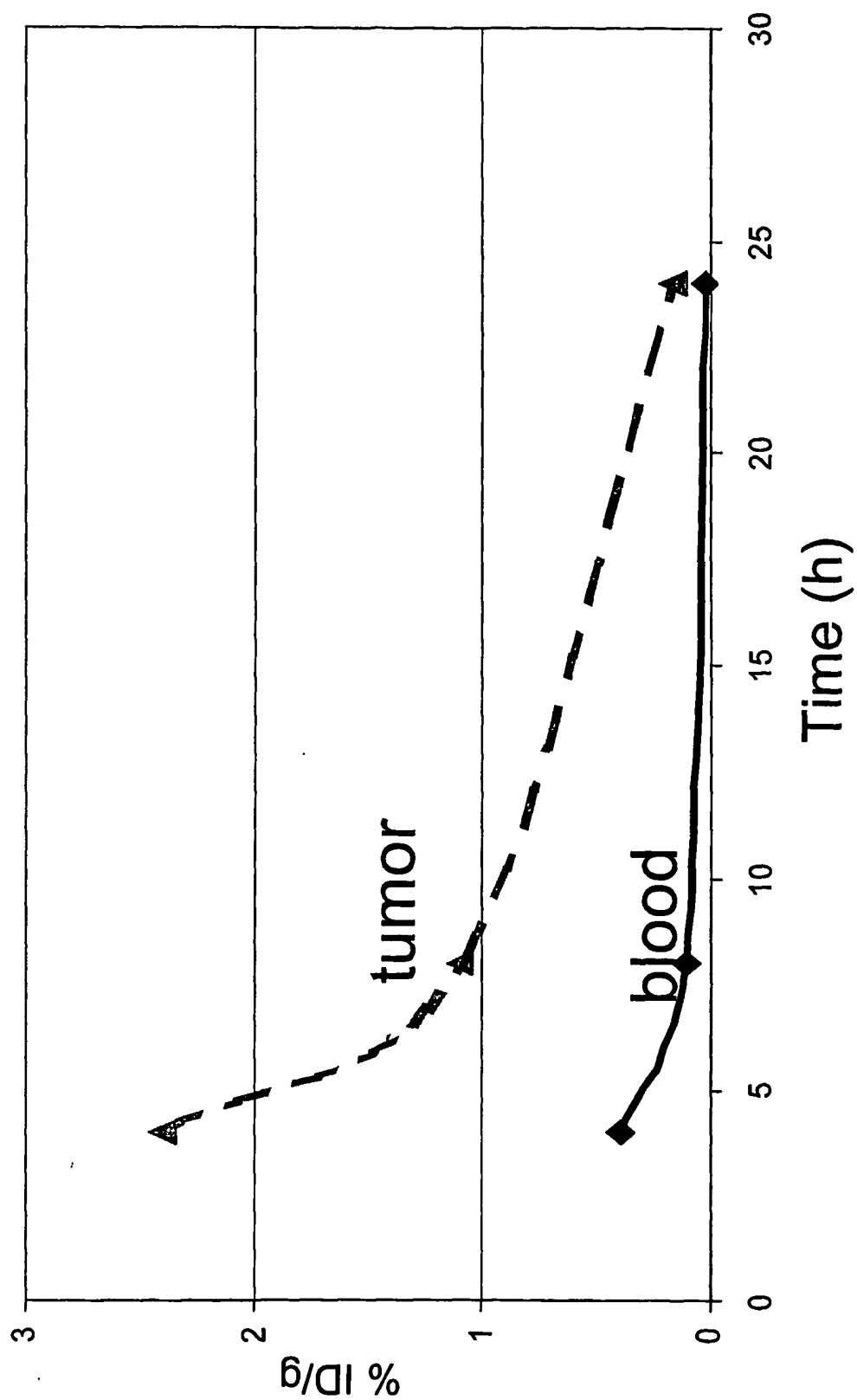
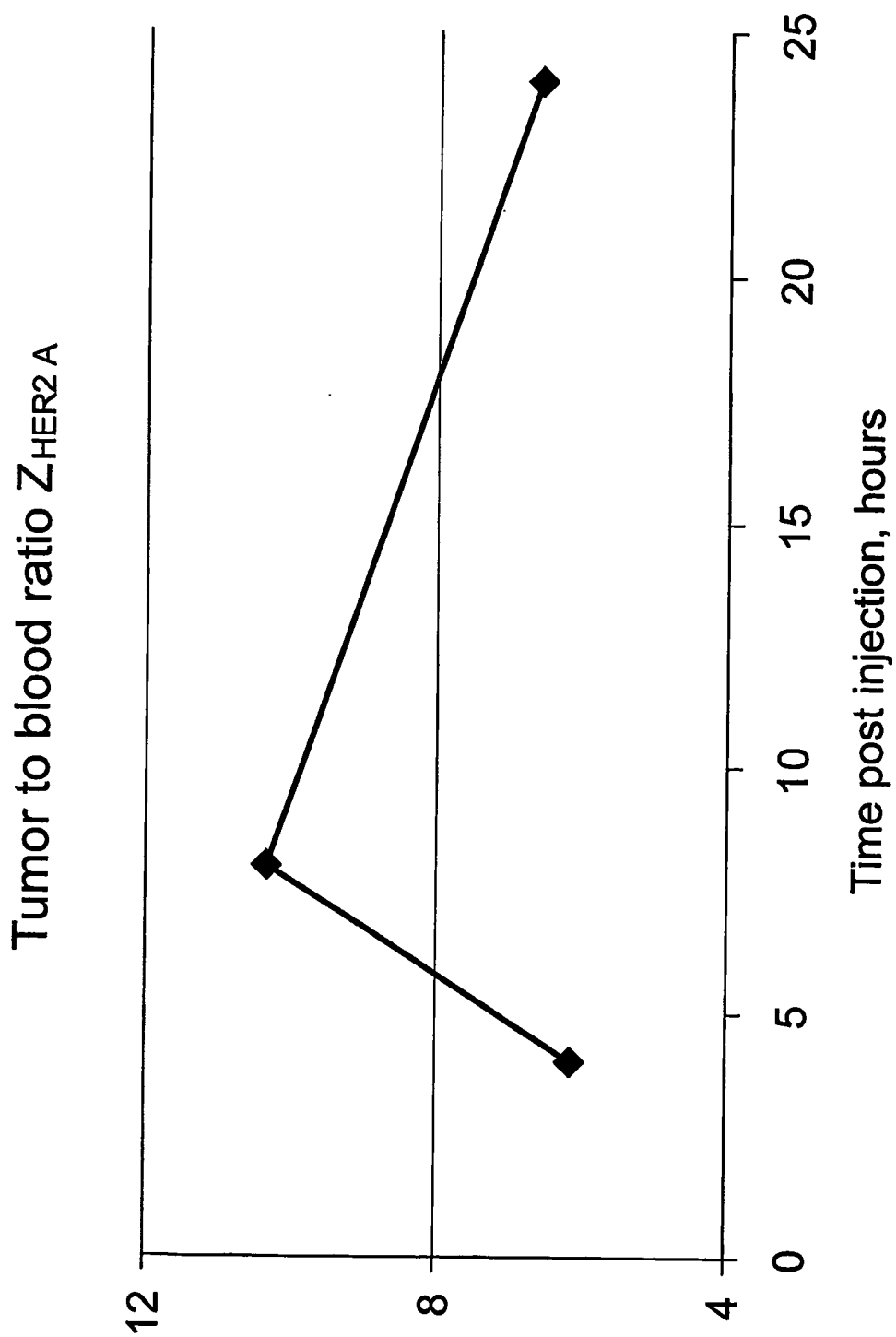
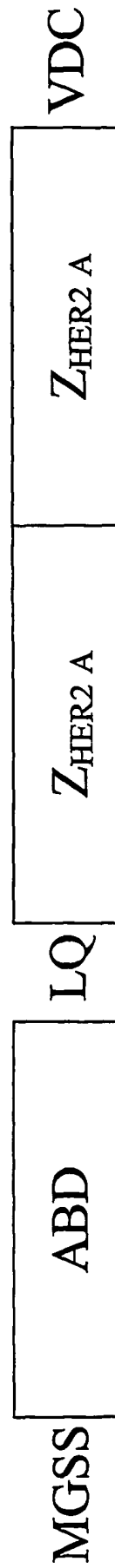


FIGURE 20

24/35

**FIGURE 21**



25/35

FIGURE 22

26/35

Biodistribution ABD(Z_{HER2}A)₂, 12 and 24 hours

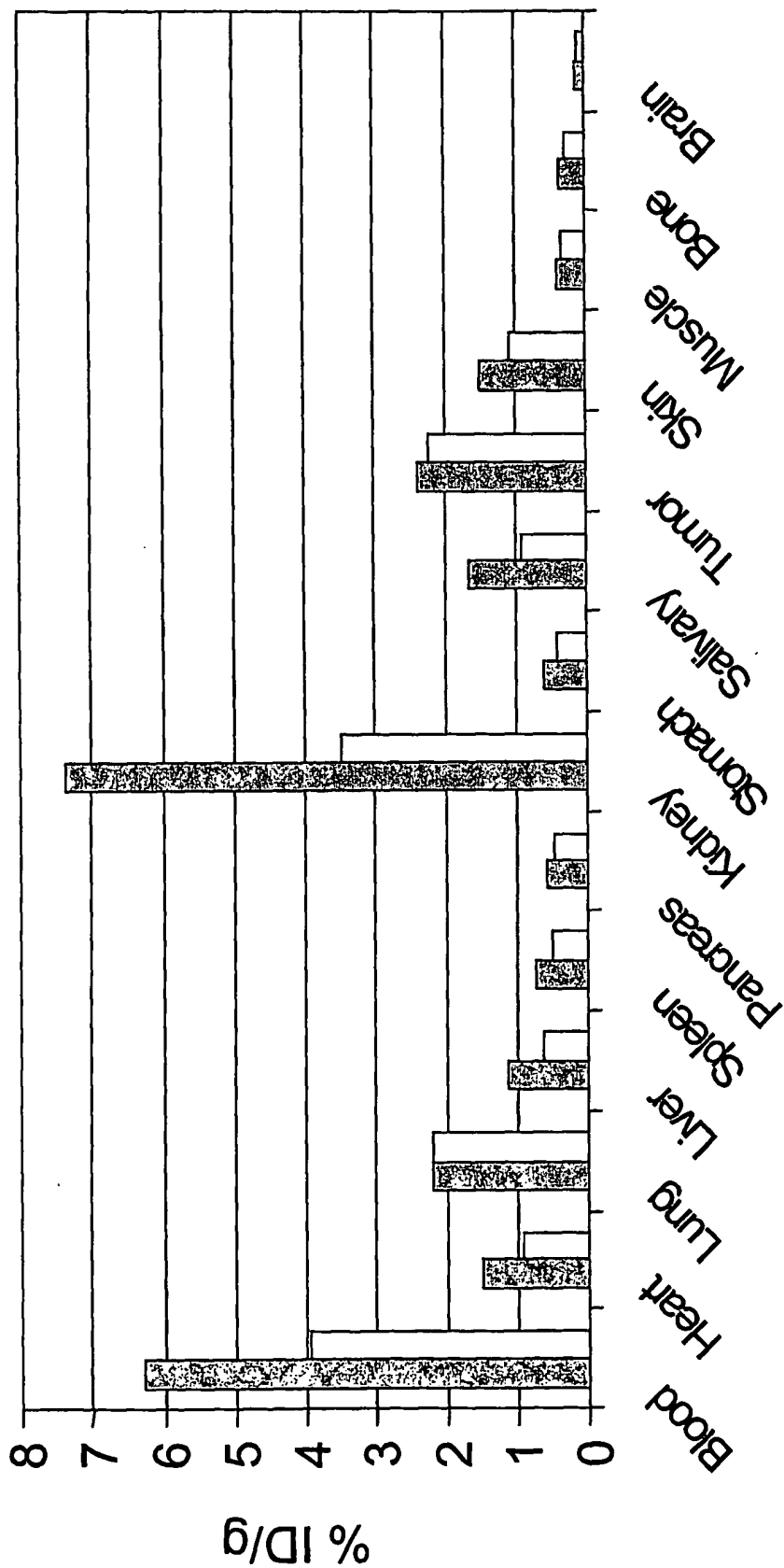


FIGURE 23

27/35

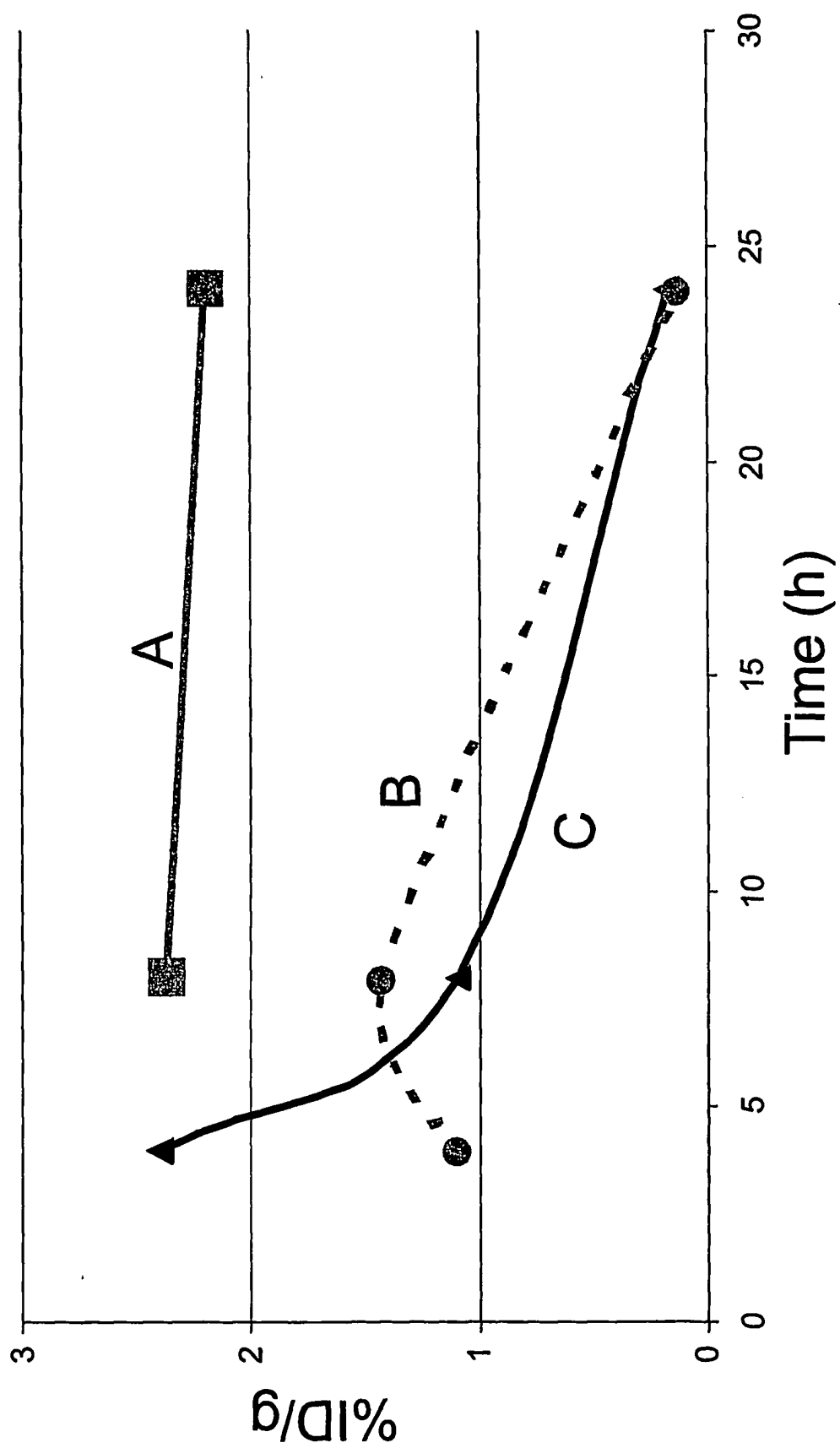


FIGURE 24

Tumor uptake at 8 h pi

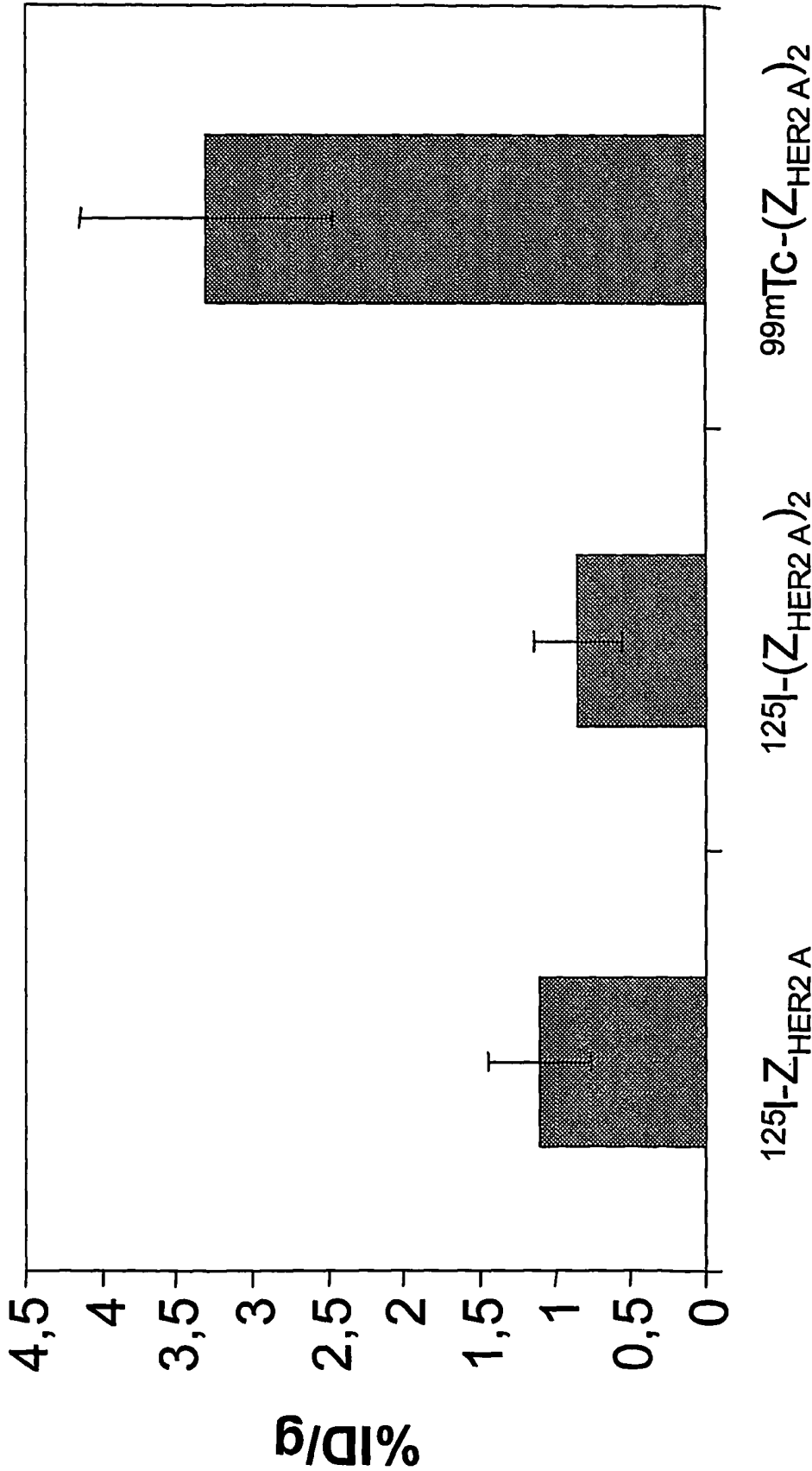


FIGURE 25

29/35

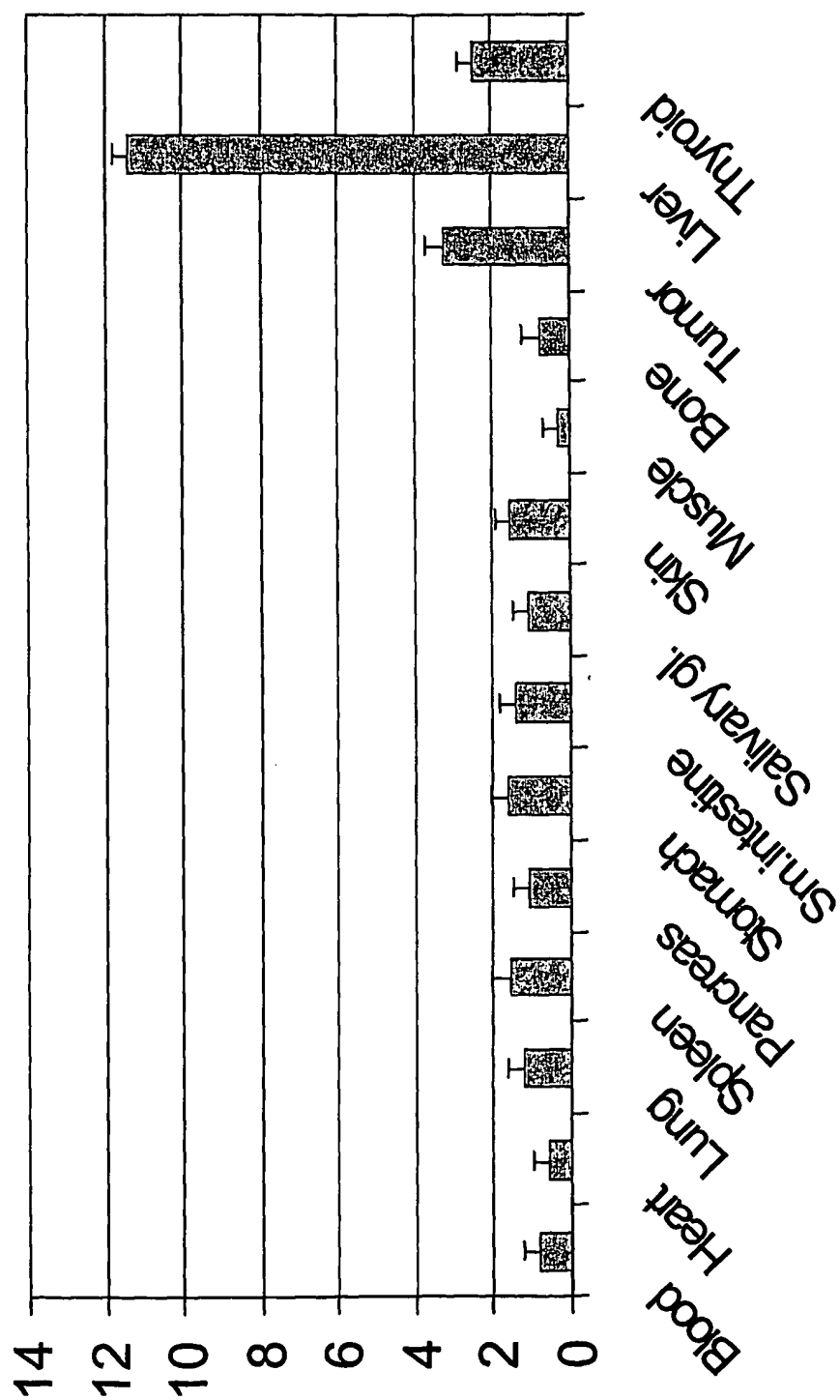
 $^{99m}\text{Tc}-(Z_{\text{HER2 A}})_2$, 8 hours

FIGURE 26

$^{99m}\text{Tc}-(\text{Z}_{\text{HER2}}\text{A})_2$, 8 h pi

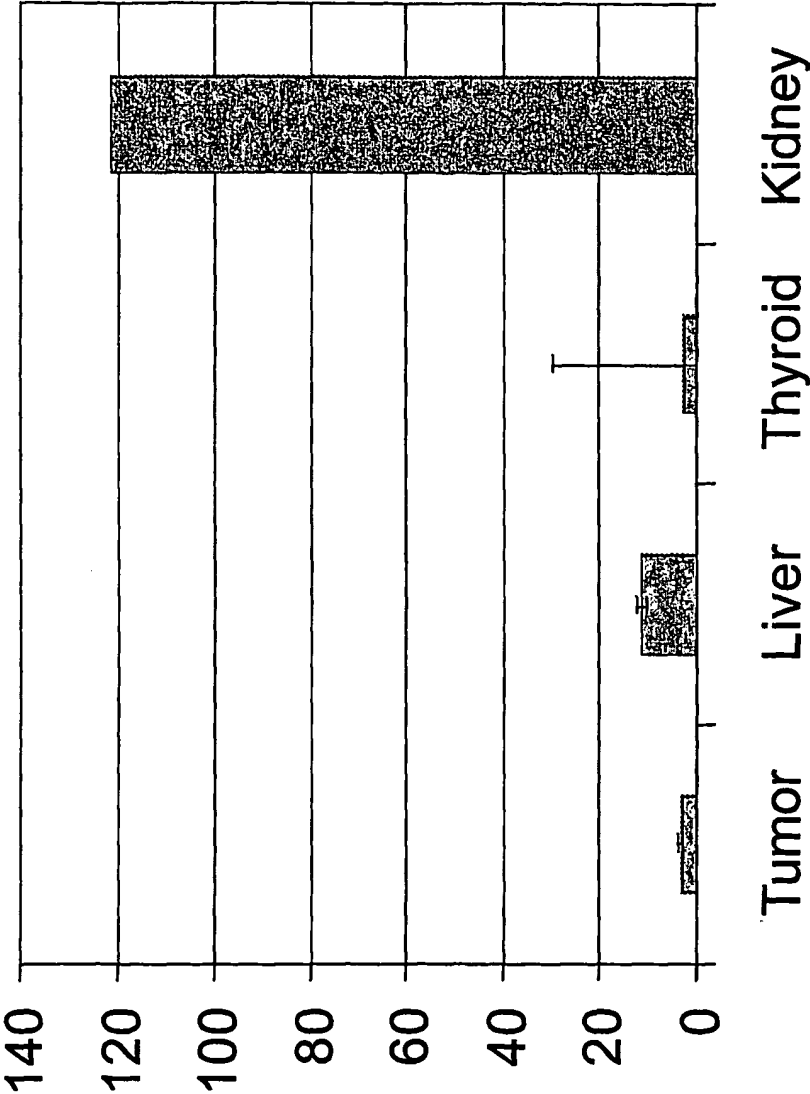


FIGURE 27

31/35

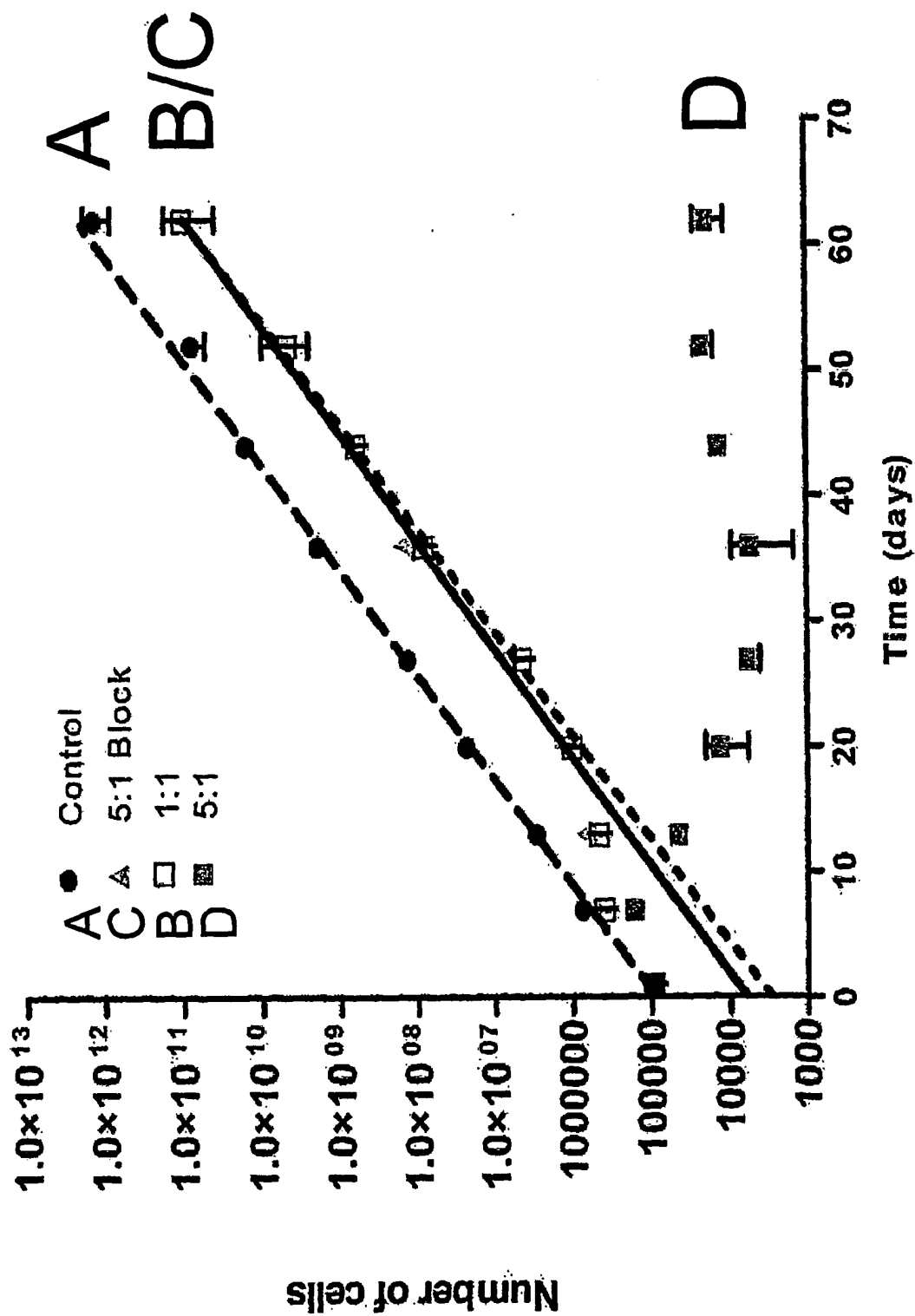


FIGURE 28

32/35

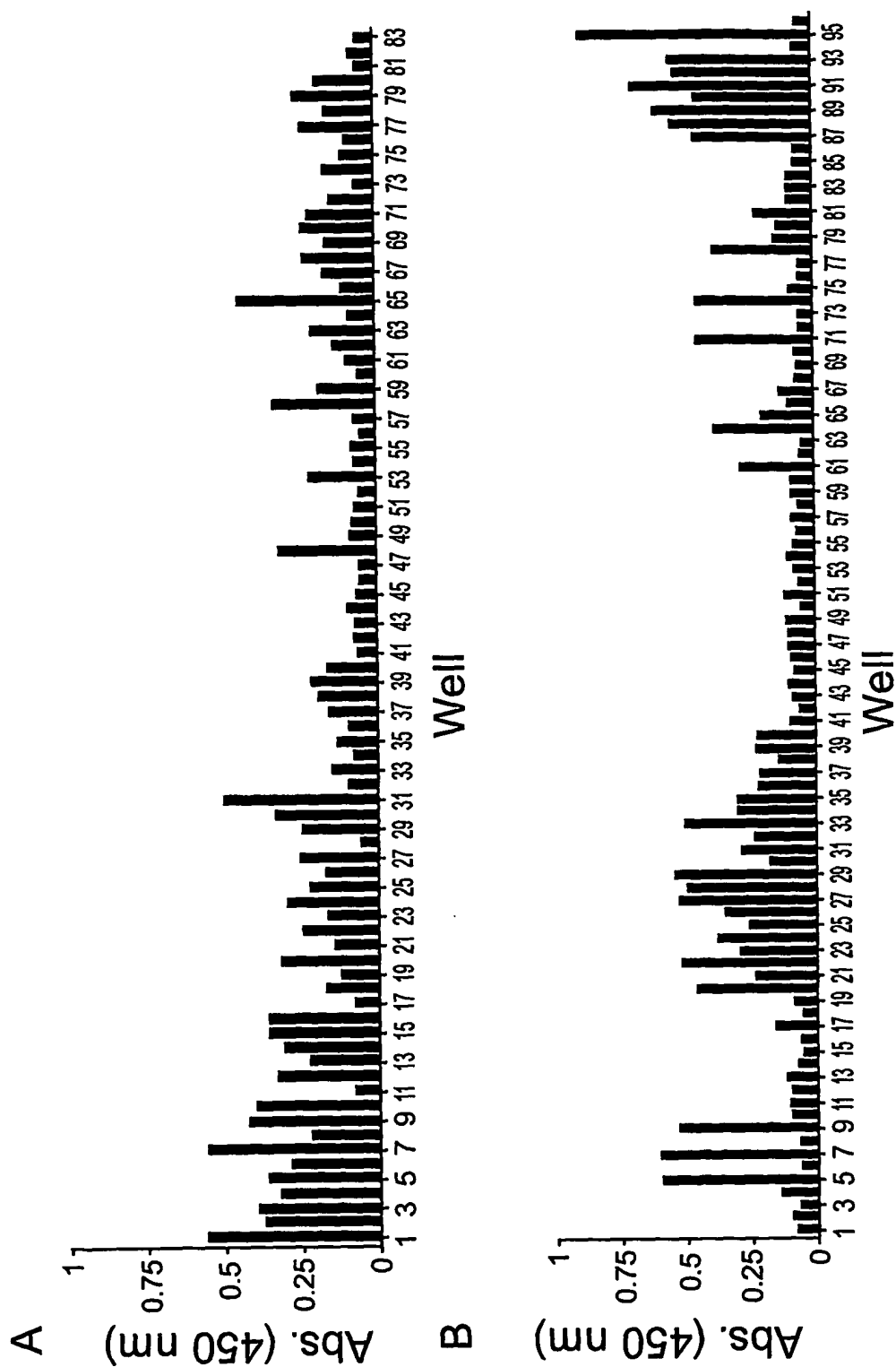


FIGURE 29

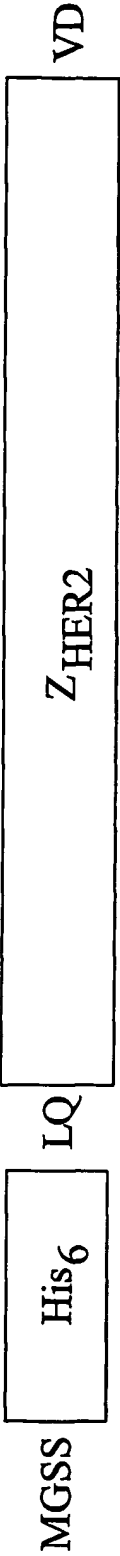
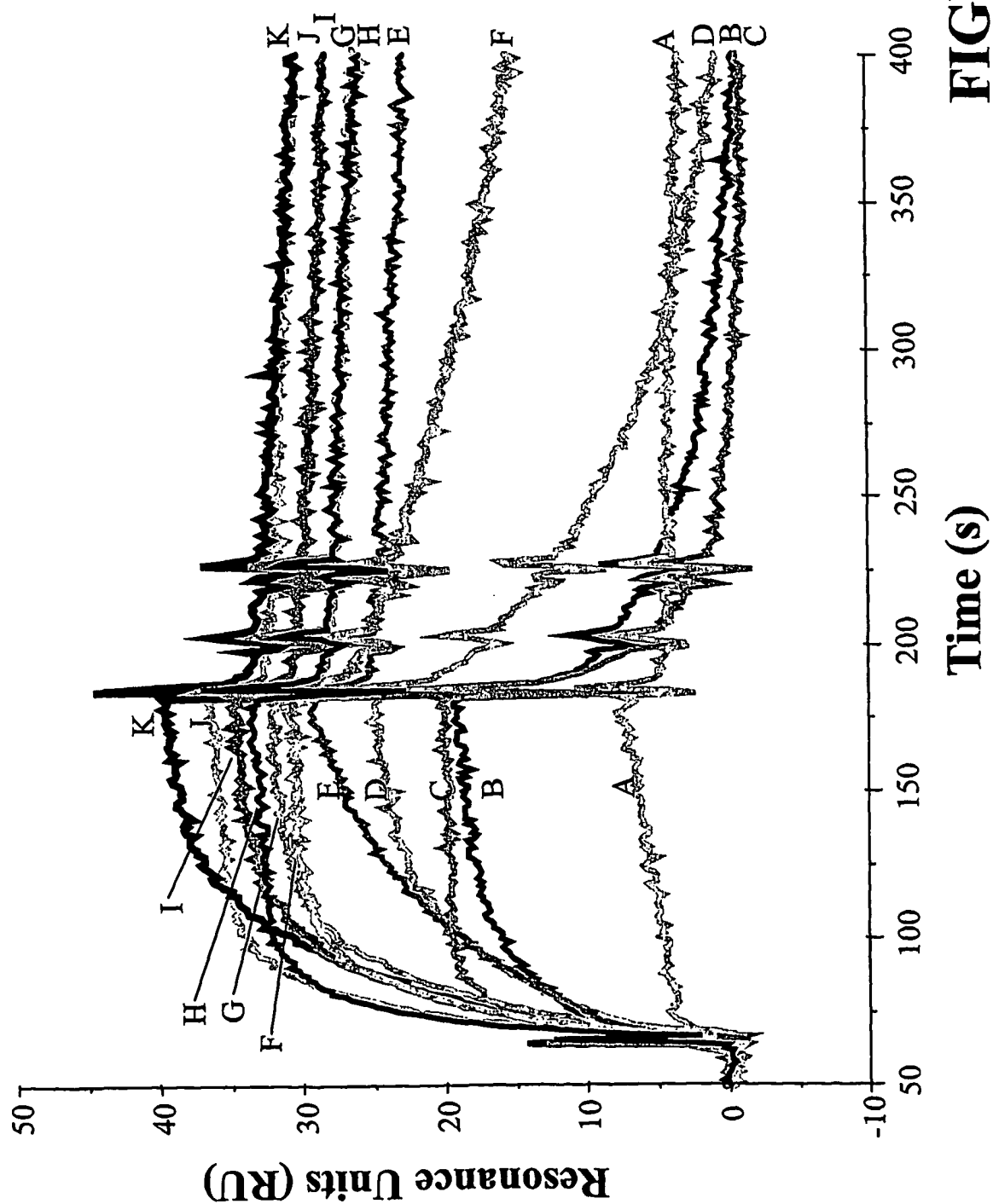


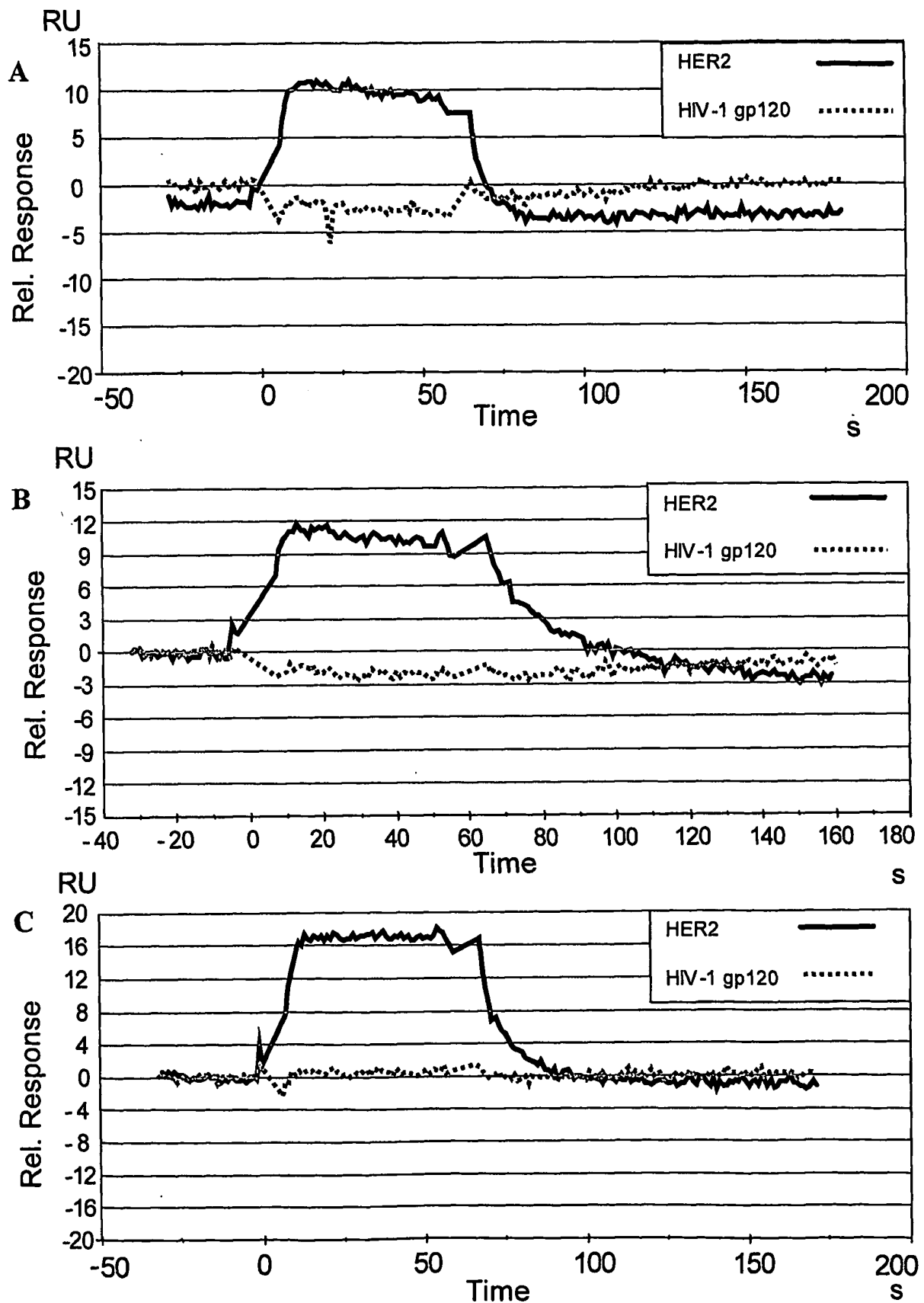
FIGURE 30

34/35

**FIGURE 31**

35/35

FIGURE 32



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